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THE LOOM AND THE ANVIL

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☞ Postmasters or others, sending ten dollars, shall have six copies of this work sent for a year to such address as they may give.

☞ Subscribers were never coming in to the *Plough, the Loom, and the Anvil*, so fast as since the 1st January last, and from all parts of the Union alike, except that few come from States north and east of New-York, and it has been interdicted at Charleston, on account of the Editor's residence on one side of a certain line.

SUBSCRIBERS, since the first of January, have come from ten slave and seven free States.

The Plough, the Loom, and the Anvil.

VOL. III. MARCH, 1851. No. IX.

THE PROSPECT:

AGRICULTURAL, MANUFACTURING, COMMERCIAL AND FINANCIAL,

AT THE OPENING OF THE YEAR 1851.

BY HENRY C. CAREY.

Is there any one so insensible to the influences which ought to animate every well-informed, free American cultivator of the soil, as to admit that he feels no concern in "the causes" of the progress and decline of industrial communities? and more especially, such causes as affect the interest of his own calling and country? To such, if there be any, we shall make no further explanation as to the reasons which have prompted us, in the management of this work, to accompany elucidations of the *practice*, with dissertations on the *political economy* of agriculture.

As eminently adapted to this purpose, the contributions of Mr. Carey to our pages, have attracted the notice and approval, not only of many of the wisest of our own country, but of the most distinguished political economists of Europe.

In the January number of BLACKWOOD'S celebrated "EDINBURGH MAGAZINE," the Editor, in a review of the "Harmony of Interests," written for this journal, says,—

"Mr. CAREY, the well-known statistical writer of America, has supplied us with ample materials for conducting such an inquiry; and we can safely recommend his remarkable work to all who wish to investigate the causes of the progress and decline of industrial communities."

In referring to the disappointment of the Free-trade League in England, who had counted on "*American reciprocity*," the same writer says,—

"What is there wonderful in this? Was it likely that a country, *possessing within itself the raw material in abundance*, and, so far as cotton was concerned, having a virtual monopoly of its growth, should *for ever refuse to avail itself of its natural advantages*, and to stimulate agriculture by giving it that *enormous increment of consumption* which must arise from the establishment of domestic manufactures? Does not common sense show us, that the nearer the point of exchange can be brought to the exchanging parties, the more advantageous and profitable to both parties must that interchange necessarily become? Unquestionably it is for the interest of the American planter to have the manufactory brought as close as possible to his plantation, seeing that thereby he would avoid the enormous charges which he bears at present, both in land carriage and freightage—charges which, of themselves, go a great way towards the annihilation of his profit. Add to this, that those charges on the raw material necessarily enhance the price of the fabric when converted by British machinery, and again transported to America; and it must become evident to every one, how largely the American planter is interested in the foundation and success of American manufactures.

"The interest of the agriculturist is equally great. For him, a steady market at his own door, such as extended manufactures alone can give, is the readiest and most certain source of wealth and prosperity. What he wants is regular consumption; and the nearer the customers can be found, the greater will be the demand, and the more profitable the supply."

[*Ed. of P. L. & A.*

CHAPTER V.

THE TARIFF OF 1846.

THE year 1846 brought with it a great change in the commercial policy of the country. The advocates of the policy erroneously called "free trade," asserted that the effect of the tariff of 1842 had been—

First, to divert labour and capital from pursuits that did not need protection to those that did need it, and thus to diminish the return to both.

Second, to raise the prices of foreign commodities, and thus enable the domestic producer of similar ones to impose a tax upon the consumers for his especial benefit, and thus diminish the power of the labourer to obtain food and clothing.

Third, to diminish the market for food and cotton, wool and tobacco.

These views were either true, or they were not. *If true*, the return to labour and capital should have increased regularly and steadily from 1846 to the present time, and at a rate more rapid than that of the increase from 1843 to 1847. If only *partially untrue*, the rate of advance should have diminished. If *absolutely and wholly untrue*, labour and capital should be now less productive of commodities for the use of man than they were in 1846.

If true, the power to consume cloth, and iron, and fuel, should have increased at a rate more rapid than it had done under the tariff of 1842. If *absolutely untrue*, the power to consume those articles must have diminished since 1846.

If true, the people of the Union should now be to the farmers and planters of the Union far better customers than in 1846, consuming more food and cotton. *If absolutely untrue*, they must have become poorer customers to those farmers and planters.

If true, they must have had so much more to sell to foreign nations as to enable them *to pay for more* of their productions. *If absolutely untrue*, they must have had so much less to sell that they have become able to pay for less of those productions.

I would now beg the reader to study carefully the above, and satisfy himself that such is the mode of testing the charges against the policy of 1842: and I am the more anxious for this, because it is so difficult to hold the advocates of the theory known by the name of "free trade" to any thing like a fair exposition of their views of what constitutes "prosperity," and what it is that we should have reason to expect from the working out of their principles. The great end in view, I understand to be that of finding the system of policy under which labour and capital produce most commodities, enabling the labourer and capitalist to consume most and have most to sell, thus increasing trade within and without the nation. This is, as I conceive, the true test of any system of policy. By that I desire the tariff of 1842 to be judged, and by that I ask the reader to judge the tariff of 1846.

In various cases a diminution of production has long since become obvious, but they are ascribed to "over-production," an idea that had its origin in the errors of the English politico-economical school. So long as the people of the world shall continue to be unable to obtain as much food, cotton, wool, cloth, fuel, and iron, as is required for the satisfaction of their *utmost and most unreasonable desires*, there *can be no over-production*, except that which results from inability, on the part of those who desire to consume, to produce commodities to be given in exchange. The farmer desires to exchange his food for cloth, fuel, iron, books, or newspapers, but the market is glutted with food, and he is compelled to dispense with much of the cloth or iron he would have desired to purchase. Were he now to inquire into the cause of this "glut" of food, he would find it to result from a diminished demand for labour, to be applied to the production of cloth and iron. The labour of the class of artisans, miners, and furnace-men had become less productive, and *therefore* they were compelled to become poorer customers to the farmer. The planter desires to obtain food, cloth, or iron, for his cotton, but the market is "glutted," and he is compelled to diminish his purchases. He becomes a poorer customer to the mechanic, because the mechanic is a poorer customer to him. Increase the demand for food, and the farmer will become a better customer to the planter, the mechanic, and the miner. Increase the demand for cotton, and the planter will become a better customer to the farmer and the mechanic. Increase the demand for iron, and the furnace-man will become a better customer to the planter and the farmer. The existence of "gluts" is an evidence of great error in the system under which

they are produced. Their absence is evidence of soundness of the commercial system under which they are not produced. In the year 1845 and 1846 there was no glut of cloth, or of iron. Consumption was immense, because of the vast increase in the power to produce food to be given in exchange, and there was no other glut of food, or of cotton, than that which resulted from the fact, that the then rapidly growing consumption, checked during the previous period of "free trade," had not yet overtaken the supply. There is now a "glut" of cloth, and of iron, and of a thousand other commodities, because the ability to produce food, cotton, tobacco, rice, and other products of the earth is now less than it was four years since, and there is consequently less to be exchanged against cloth and iron, as I shall now have occasion to show.

In 1842, the domestic production of iron was but little more than 200,000 tons. In 1847 it was 800,000. A similar rate of growth would give, for the present year, at least a million and a half of tons. It has, however, fallen to less than half a million, and there is reason to believe that it does not exceed 400,000. If so, production has diminished 400,000 tons in three years, whereas it increased almost 600,000 in five years, and notwithstanding this wonderfully diminished production, the market is "glutted," while every farmer and planter in the nation is anxious for more iron roads, and labourers are everywhere idle for want of machinery.

Has the deficiency been made up by importation? In reply, it will be sufficient to state, that the import of 1849 exceeded that of 1846 by only 230,000 tons, and that of 1850 by only 270,000 tons, the total import having been only 352,000; and that, while every ton produced and imported in 1846 found immediate demand, because men were everywhere producing things to be given in exchange, in 1849 and 1850 the market was everywhere "glutted," because of an inability to produce things which the producers of iron were willing to receive in exchange for it. So far as regards iron, then, the anticipations of the framers of the tariff of 1846 have failed. Instead of a more rapid increase of the power of consumption, it has greatly diminished, and a "glut" has been created where none before existed, the consequence of which is, that miners and furnace-men are unable to obtain the necessary supply of food and clothing. Had the tariff of 1842 remained unchanged, the product of 1846 would now be doubled, and we should be consuming a million and a half of tons, without any suggestion of "over production." As it is, from day to day we learn of the stoppage of further furnaces, and with each such stoppage the "glut" increases, and *must continue to increase,* because the power to produce commodities to be given in exchange for iron must decrease more rapidly.

We have now before us the astounding fact, that, while we are straining all our energies to purchase iron on credit, and are going in debt at the rate of almost a million of dollars per week, the actual consumption of this important commodity, with a population of probably *twenty-four millions,* is less than it was with a population of *twenty-one millions,* and that the difference is not less than twenty-five per cent. Under four years of protection, consumption trebled, *and we paid off much debt.* Under four years of "free trade," it has diminished one-fourth, and we are going in debt at a rate that must speedily make us bankrupt. It would be difficult to find in these facts any evidence of the truth of the positions of the opponents of the tariff of 1842.

Whenever and wherever the consumption of iron increases, the power of production increases, and the condition of man tends to improve. Whenever and wherever the consumption of iron diminishes, the power of production diminishes, and the condition of man tends towards deterioration. Iron is the great instrument of civilization.

In 1842, the domestic production of anthracite coal was 1,108,000 tons, being little more than it had been several years before. In 1847, it was 3,030,00 tons, having almost trebled in five years. A similar rate of progression would give now above six millions of tons. The last year gave, however, only 3,127,000, and, notwithstanding the consumption by steamers, the market was "glutted," the consequence of which was, that miners were unable to obtain food and clothing, and the market for both was greatly diminished.

The price has risen, because of the increased demand for steamers, and diminished supply consequent upon the destruction of the facilities of transportation, thus producing a diminished power of consumption among the people. The deficiency has not been made up from abroad, for the import of 1848 exceeds by only 52,000 tons that of 1846, and that of 1850 by 24,000 tons.

Now, it is clear that the power to consume fuel increased with great rapidity from 1843 to 1847. Why has it not only not increased with similar rapidity, but actually diminished in its ratio to population, in the period which has since elapsed? Certainly not because the people were before too well warmed, but as certainly because the power to produce things to be given in exchange has diminished. The men who cannot sell their labour to be employed in the production of cloth or iron, are unable to purchase fuel.

The domestic consumption of cotton in the year 1841–2, was but 268,000 bales, while of that grown in 1847, it was 600,000 bales. Of that grown in 1848, it was still about 600,000, to wit, taken for the Atlantic ports, 531,772 bales, and consumed in the interior, 75,000, making a total of 606,772

Of that grown in 1848, the former was 518,039, and the latter 110,000, making a total of..... 618,039*

While of that grown in 1849, the first has fallen to 487,769, and the second to 107,500, or a total of..... 595,269*

Of the new crop, the quantity taken from the Atlantic ports, from Sept. 1, to Nov. 1, was 50,963 bales, against 74,775 in the previous year; and there is reason to believe that the consumption of the year from the Atlantic ports cannot exceed 400,000 bales, nor that of the whole country 500,000, although the population has increased *at least ten per cent.* since it had reached 600,000.

At the ratio of increase that was exhibited from 1842 to 1847, we should consume in the coming year almost a million of bales, whereas it will not exceed half that quantity; and yet this effect has been produced by measures adopted by men who believed that the domestic consumption of their great staple was impeded by the action of the tariff of 1842. If they were right, why has it not increased even faster since the change? The productiveness of labour should have increased, and the power of consumption should have grown, whereas, it has greatly diminished, *in actual quantity*, notwithstanding the increase of population. It would seem clear, that there has been a diminished power to produce commodities to be exchanged for cotton, as the mills and furnaces of the Union have gradually been closed. The men who cannot make iron, or mine coal, or convert cotton into cloth, cannot buy cloth.

We may now look to see if we can find in the increased imports, any amends to the planters for this wonderful diminution in the growth of the domestic market, which cannot be estimated at less than 300,000 bales. In the two years, ending June 30, 1846, the average import of foreign cottons, was $13,681,000

In that ending June 30, 1847, it was..... 16,072,000

* Quantities given by the New York Shipping and Commercial List.

While in that ending June 30, 1849, it was only..... 15,180,000
In that ending June 30, 1850, it has been..... 19,895,000

Under the tariff of 1842, the import of foreign cottons had nearly doubled in amount, having risen from little more than seven millions in 1842, to thirteen and a half in the year which preceded the passage of the tariff of 1846, and above sixteen in the year of which the first half was under the regime of 1842. The growth of the power to import fine cottons has, therefore, diminished with the diminution of the power to produce at home the coarse ones. This, however, is not all. Large as was the domestic production of cotton goods, the average export of the year 1845 and 1846 was under four millions, while that of the year ending June 30, 1848, was $5,718,000

That ending June 30, 1849, ... 4,933,000
And the last year,..... 4,734,424

Deducting these quantities from the imports, it will be seen that the *net* import of the period of protection was nearly *ten* millions, while that of "free trade," with an increase of population of above three millions, has only reached fourteen, the ratio of growth having *greatly diminished*, although we have gone in debt, during the last year, almost a million of dollars per week.

It is obvious that, with the *diminished power* to convert cotton into cloth, there is an *increased necessity* for looking to foreign countries for a market for our diminished product, and that this necessity steadily increases. In the first two months of the present crop-season, the cotton taken for home consumption had *decreased* one-third, while the export of cotton goods in the single month of October, from the port of Boston alone, is stated to have so much increased as to have reached nearly half a million, being one-third of the whole amount since January.

It would seem from this, that the power to consume cotton goods, domestic and foreign, which had doubled in the years of the tariff of 1842, has actually fallen off *in quantity*, notwithstanding the addition to our population of nearly three millions of people, showing that the power to produce commodities to be given in exchange for cotton cloth, is not as great in amount as it was then. Trade has diminished, and has become less free, because it is *necessity*, alone, that causes this increase of exports.

If we now desire to know the cause of this, we need only turn to the fact that the production of iron, which should have grown to almost a million and a half of tons, has fallen to 400,000—that the production of coal, which should have grown to six millions, has remained stationary at three—and that throughout the country the mass of the cotton mills are stopped, or running short time; the consequence of which is, that the operatives can buy little food, and have nothing to spare for clothing. In the neighborhood of Boston, 300,000 spindles are stopped. In Rhode Island, 71 factories are closed. In New England at large, not less than 700,000 spindles are stopped, and must continue so. During much of the past year, they were enabled to continue running, because they had laid in their stock of cotton at low prices, but now they are stopped until there shall arise a demand for cloth that will enable them to sell it at as much as will pay for the wool, and the wages of the people who convert it into cloth. At Buffalo, large mills are closed, and so it is in other parts of New York. In New Jersey, every mill, with one exception, is stated to be closed. In Pennsylvania, some of the largest establishments are stopped, and others are working short time. In Maryland, eleven are closed; and the stoppages are spreading gradually throughout the country, ultimately to reach every State of the Union. If now, we estimate the quantity of wages that would be paid in, and for all these factories, and the shops connected with them, we shall find that it could scarcely be less

than sixty thousand dollars per week, or three millions of dollars in a year; to replace which there is nothing, for the mass of the persons that were thus employed are deprived of all employment. If next we remark the fact that all these persons, thus deprived of work, must eat, though earning nothing, we shall find that they not only have nothing themselves to spare for clothing, but that the necessity for finding numbers of them in food, deprives parents of the power to purchase clothing for themselves; and thus it is, that *with every diminution in the power to convert cotton into cloth, there is diminished power to consume the little that is made*, while *with every increase in the power of conversion, there is increased power to consume the large quantity that is made.* In 1841, the *net* import was but four millions of dollars, whereas in 1845 and 1846 it was *almost ten* millions, although the home consumption of cotton had doubled, and yet there was then no "glut."

It will be said, that the increase of the price of cotton has tended to produce this effect, but *that should have produced a contrary one;* and it always will do so, when the manufacture at home is permitted to increase. The planter is enriched by the doubling of the price upon the whole crop, and the country at large is enriched by that doubling upon the large quantity exported, and, therefore, the power of domestic consumption should grow more rapidly with a high price than with a low one. The crop grown in 1846 was less by almost one-third than the average of the two previous years, yet domestic consumption increased, and it did so because, as the price of cotton rose, the power to produce commodities to be given in exchange for cloth increased; as the cotton-growers may readily satisfy themselves must inevitably be the case, when high price results from increased demand, and not from diminished production.

In 1842, the quantity of wool delivered at Pittsburg, and on the New York canals, was..... 4,800,000 pounds.
In 1846, it had risen to 12,269,000
And in 1847 to..... 16,325,000
In 1848 it was 11,600,000
In 1849..... 17,800,000
In 1850..... 16,400,000

We have thus, notwithstanding the vast increase of population, gone back to the point at which we stood three years since. Nor is this all. There has been a very large diminution in the quantity raised nearer to market. The flocks of Vermont, and of the Eastern States generally, have, it is understood, greatly decreased.

Now, the actual increase of five years, under the tariff of 1846, was more than 300 per cent., while there is every reason to believe, that since that time, the actual diminution of production has been very large indeed. The high prices of this year have induced the sending to market of all that could be found; and the *Cincinnati Gazette* informs us, that west of that point, there do not now remain 200,000 pounds, whereas in former years large quantities remained behind. It is obvious, then, that so far as the woollen manufacture is dependent upon the supply of domestic wool it has actually diminished, while so far as it depends upon foreign wool, it has very greatly declined. The average import of foreign wool, in 1845 and 1846 was about 23 millions of pounds, the import having *trebled*, while the domestic production so greatly increased; but now that the domestic production has receded, import has also receded. The average import of 1848 and 1849, was only 14,000,000, and that of 1850 has been 18,000,000

The duty on woollen goods was reduced with a view to remove a tax which was supposed to diminish consumption, but so far as the domestic production is concerned, it is clear that the actual consumption has very largely dimi-

nished, notwithstanding an increase of numbers exceeding the total population of some important kingdoms of Europe. Such being the case, we may advantageously inquire if the import of foreign woollens has made amends for this extraordinary deficiency.

The average import of cloths and cassimeres in 1845 and 1846, was 4,800,000
That of 1849 was..... 4,995,000
That of 1850, ... 6,184,990
The average import of woollen goods of all kinds, in 1845 and 1846, was... 10,350,000
That of 1849 was 13,704,000
That of 1850, ... 15,965,000

The average price of wool, when manufactured, is probably one dollar per pound. We have, therefore, an excess of foreign manufactures equal to *five* millions, *and those not paid for*, and a diminution in the domestic manufacture equal to *fifteen* millions. It is obvious that the actual quantity of wool consumed, is less by many millions of pounds than it was three years since, although it must have doubled in the period of the existence of the tariff of 1842. The object of the change of policy was that of *increasing the ratio of the growth of consumption;* but it has not only not accomplished that object, but it has actually reduced the consumption of iron and of cotton and woollen cloths to a far less amount for a population of 24 millions, than it was under the tariff of 1842 for a population of 21 millons.

Production has diminished, and there is a glut of every thing. Cottons accumulate for which there is no demand. Woollens are languid. Iron is piled up until the quantity unsold amounts to hundreds of thousands of tons. The coal miners, as a body, would have been ruined, but for a freshet that cut off from market many of the most productive mines; and so does the "glut" make its way through society, each step providing for a new and further one. The closing of a furnace stops the demand for cottons, and the stoppage of the cotton factory diminishes the demand for iron. The late cotton operative is unable to purchase woollen cloth, and the woollen mill is closed, thereby depriving the woollen operative of the power to purchase food or clothing. Bad as it is now, we have as yet seen little more than the commencement of the operation.

If we now compare the production of iron, coal, and cotton and woollen cloths of 1847 with that of 1842, we must arrive at the conclusion, that the actual product of labour and capital, as shown in the difference between the value of the raw material with that of the manufactured articles, was greater in the latter than in the previous year, by at least, $120,000,000

If next we add the amount of labour applied to the creation of the cotton and woollen mills, the furnaces, the rolling mills, the opening of the mines, the erection of machinery, and the building of houses, &c. &c. required for this enormous increase of manufactures, we shall be safe in putting it at 30,000,000

Making a total excess of 1847 over 1842, ... $150,000,000

If now, we make a similar examination for 1850, we can scarcely fail to arrive at the conclusion that at least one-third this growth of manufacture has been lost, say 50,000,000

While throughout the country there is no demand whatever for the erection of mills or furnaces, or for the opening of mines, and, that there is here a further diminution in the demand for labour, to the extent of 30,000,000

Making an actual diminution of 1850, as compared with 1846, of no less than..... 80,000,000

If, next, we suppose that in the four years that have elapsed since the tariff of 1846 went into operation, the growth would have been no more than it was in the years from 1843 to 1847, during which the nation was slowly recovering from the effects of the compromise tariff, we should have an excess of at least..... $300,000,000

Whereas the actual increase cannot be estimated at more than 80,000,000

Making the diminished productiveness of labour $220,000,000

in these few branches of employment; and it is a very small calculation, for it is the characteristic of increased production that each year prepares the way for *a new and larger increase*, while, with diminished production, each successive year is marked by *an increase in the ratio of diminution*, gradually extending, as it is now doing, to every department of industry.

It will be said, however, that labour has been more productively employed elsewhere. How far that has been the case, we shall see, when we come to examine the productiveness of agricultural labour. We need to find there a large increase, to make amends for deficiencies elsewhere.

The population of the Union is greater at this moment, by more than three millions of persons, than it was four years since, while the number employed otherwise than in agriculture has greatly diminished. One-third, at least, of the persons employed in mining coal and ore, making and rolling iron, and manufacturing cloth, must now be either idle or engaged in raising food, and to these must be now added the whole sum of the addition to the population in the last three years, making an addition to the agricultural population of four millions, or almost twenty per cent.; and as their labours are, by the modern "free-trade" theory, more productively employed than before, *the ratio of increase* should now be far greater than it was under the tariff of 1842. What was that ratio was shown in a former chapter. (See page 31.) From 1840 to 1847, it was about *forty per cent.*, notwithstanding the diversion of population to the "unprofitable" pursuits of opening mines, building mills and furnaces, mining coal and ore, and making cloth and iron. We are, therefore, fairly entitled to find, for the last four years, an increase of *fifty per cent.* in the quantity of agricultural products.

That a large portion of these four millions of people has applied itself to agriculture, will be obvious to all those who mark the wonderful growth of emigration from the old States. Maine is losing her population rapidly.* In many parts of Vermont, there is an actual diminution.† From New England generally, emigration is large. So is it from New York, New Jersey,‡

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* The population of Saco, and we may say the same respecting that of Biddeford, is less than it was a year ago, by over a thousand. Had the census been taken in June of last year, the number would not have fallen below 7000 in Saco. The stoppage of the manufacturing operations on both sides of the river has lessened our population at least 700 on each side, and we regret to say that the loss is still going on, and will not be checked until the business of manufacturing brightens. To show the loss which Saco has sustained from the cause mentioned, we will state that an enumeration made by us of the inhabitants living on Factory Island, in May, 1848, showed over 1000 persons residing there. The census of this year hardly comes up to 500. The boarding-houses then averaged 33—this year, hardly 13. The population of Saco, in 1840, was 4408—increase 1839, or 24 per cent."—*Saco Union.*

† The *Vermont Chronicle* says that the late census returns for that State show a large decrease of population in many of the towns since 1840.

‡ Owing to the stoppage of the furnaces and other iron works in four of our townships, there were nearly 400 less voters in the county than in 1844, they having moved away; at least two-thirds of these voters were Democrats.—*Sussex Herald.*

This county abounds in mineral wealth, and is close to the great anthracite coal region; yet its growth in ten years was but about ten per cent.

Pennsylvania, and even from Ohio,* and thus is labour diverted from the work of producing food, and cloth, and iron, to the making of new machines for future production. At the South, emigration is enormous.†

The increase of the COTTON-growing population, in the last four years, can not have been less than fifteen per cent., as, in addition to the natural increase, there has been a continued stream of emigration from all the Southern States to those further South and West. Merely to keep pace with the population the crop should, therefore, have grown fifteen per cent. How it has been, we may now see.

The average crops of 1842–3 to 1845–6, were	2,230,000 bales.
That of 1847–8 to 1850–1	2,300,000
That of 1849–50, was	2,096,000
And the present is estimated at only	2,200,000

The last four years prior to the passage of the tariff of 1842, gave only 1,700,000. The four which followed the passage of that act gave an increase of thirty per cent., or *double the growth of population.* The three which followed gave six per cent. increase, or about *half the growth of population.* The two last give *a reduction of four per cent.* against an increase of population amounting to fifteen per cent. The average crop of 1839–40 and 1840–41 was above 1,900,000 bales, being within ten per cent. of our present production, notwithstanding an increase of population amounting to more than thirty per cent. During the existence of the tariff of 1842, we had about a million and three-quarters of bales with which to freight our ships; but now, notwithstanding the growth of population, we should have but fifteen hundred thousand, were it not that we are gradually closing all the mills of the country, and rendering the planters gradually more and more dependent upon the ever variable market of England.

The average export of TOBACCO for the four years ending June, 1847, the period of the tariff of 1842, was ..... 150,000 hhds.
That of the two years ending June 30, 1849, was only... 116,000
That of 1850 has been 145,729
The Virginia inspection for the first four years of the tariff of 1842, averaged 50,000
That of 1848–9 was 44,904
That of 1849–50 was only 41,926
The crop of that State now coming to market is estimated at only 30,000
and the total crop of the Union is likely to prove so short that it is doubtful if the export will reach 120,000 hogsheads.

We have here a most remarkable decrease of production, and decrease of

* The *Lancaster Gazette*, published in Lancaster, Fairfield county, Ohio, gives some details of the census in that locality, from which it appears that seven townships of the county, containing in 1840 a population amounting to 18,829, have now 18,722 inhabitants, a decrease of 107 in ten years. These are all the townships heard from, but the Gazette remarks:

"From what information we have from the remaining townships, it is altogether probable that there will be a decrease of population in the territory now composing Fairfield county."

† EMIGRATION.—The boats at the lower ferry are kept constantly in motion, crossing the emigration, which, as the season advances, rapidly increases. The principal avenues of our city, leading from the ferry and connecting with the southern military road, have been completely *jammed* during the past week. Upon the opposite bank of the river, so far as the view is unobstructed, one continuous train of wagons is seen slowly advancing. From information obtained, we feel confident, in saying the emigration this fall will nearly double that of last.—*Little Rock Gazette, Oct.* 18.

the power to furnish commodities to go abroad in payment for cloth and iron, followed, of course, by a decrease in the demand for ships; and this, too, occurring simultaneously with precisely the same circumstances in relation to cotton; and yet this decrease has taken place under a system which *looked to the substitution of the cultivation of food, tobacco, and cotton, for the making of cloth and iron.*

The SUGAR crop of 1845 reached ..... 200,000,000 lbs.
having almost doubled in three years. That of 1848 was 240,000,000
That of 1849 fell to..... 220,000,000
And the crop of the present year is estimated at..... 150,000,000

The average export of RICE, for the years of the tariff of 1842, was..... 130,000 tierces.
That of the two years, 1847–8 and 1848–9 115,000
That of 1850,..... 127,000
It would seem from this quite clear that the productiveness of planting labour, so far as regards the quantity produced, has greatly decreased, notwithstanding a large growth of population.

The average crop of HEMP in the four years of the tariff of 1842, for 1843–4 to 1846–7, was..... 43,900 tons.
That of 1847–8 was 21,584
And that of 1848–9 only..... 19,856*
Cotton, rice, tobacco, and hemp, the products of the planting States, are thus shown to obey precisely the same law. All rose under the protective system, and all have fallen since protection was withdrawn.

The Southern States also furnish NAVAL STORES, and as there has been so large a diminution in all other of the products, we might there, perhaps, find some compensation.
The export in the year 1842–3, was only ..... 226,406 barrels.
The average of the three following years was 415,859
That of the two years ending 1849–50, ... 394,948
And that of 1850, ... 531,944
Here is an increase, and the only one, and it is accompanied by a reducton of price, proving that the demand does not grow with the production. In 1845–6, the export was 416,746 barrels, valued at..... $1,085,712
In 1849–50 it is 531,944, valued at only..... 1,142,713
The export has increased almost thirty per cent., while the product has increased only six per cent.

To those who would desire to understand why it is that production so uniformly increased under the tariff of 1842, it will scarcely be necessary to say more than this—that the cause of its enactment was the universal ruin which accompanied the working of the compromise of 1833—that from 1843 to 1846 the population of the South applied themselves to production—and that in the years which had followed 1846, the mania for making new plantations and new roads by which to get to them, has sprung up, and is now raging with even greater force than it did fourteen years since.

*** The difficulty of obtaining correct accounts of the growth of hemp is very great. The statement here given is derived from a source believed at the time it was obtained, to be authentic, but I have been totally unable in any manner to verify it.**

It has been shown the power to supply FOOD in exchange for foreign commodities had grown from an average of..... $16,000,000
in the four years prior to the passage of the tariff of 1842, to the amount in 1845–6, of..... 27,701,121
The crops raised in 1846, prior to the passage of the tariff of that year, were so large that we were enabled to furnish to the world the enormous amount of..... 68,701,921
In the following year, 1847–8, it fell to..... 37,472,751
In 1848–9, the amount was..... 38,000,000
And in the last year it has fallen to 26,200,000
being actually less than the export of the last year that preceded the enactment of the tariff of 1846—that year in which the production of cloth, iron, and coal grew with such rapidity, and in which at least thirty millions of dollars worth of labour must have been applied to the building of mills and furnaces, the opening of mines, and the erection of mining and manufacturing machinery! It would seem to be difficult to account for these facts on the "free-trade" theory, though they are in perfect accordance with that of protection.

We are now consuming largely of foreign food, as will be seen from the fact that we imported last year from Canada,

Wheat.....	.....bushels,	1,237,855
Rye and Oats.....		598,433
Flour.....	.....barrels,	335,000

And yet it is but a short time since we were assured that we had four hundred millions of bushels of grain for which we needed a market! Deduct the food imported, from that exported, and the *net* export will be found to be ten per cent. less than that of 1845–6.

Thus far, even, the amount of export has been maintained chiefly by vast supplies of PORK, for in the last year our export of *home-grown* grain and flour *to all the world* has been only as follows: Wheat 608,661 bushels, and flour 1,335,488 barrels, the whole being the equivalent of less than a million and a half barrels of flour, showing a diminution of production to an extent that is absolutely wonderful. In the year 1846–7 it was supposed that we were about to feed Europe, to a vast extent, with Indian corn, but the last year exhibits an export *to all the world* of only 6,595,092 bushels; and yet so short is the supply of corn, that we are likely to have no pork for sale. From Ohio, Illinois, and indeed from every part of the West, we have information of the exceeding scarcity of hogs, and the price is now so high as must effectually cut off the power of exporting it in payment for cloth or iron, or for using it to find employment for our ships. So, too, is it with BEEF, another important item of our exports.* The following comparative view of the receipts at New Orleans of the various products of the West for the past two years, will show that while in no case has there been any material increase, in almost all there has been a large decrease; and yet, we have for the past three years been closing the mills and furnaces of the Union, and *driving* the whole increase of population to seek the West, there to employ themselves in agriculture.

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* *Beef and Pork Packing.*—The *St. Louis Intelligencer* says: "It is the general impression that for want of material, the business of this fall will fall short of last season."

Later accounts say that the deficiency will be equal to one-third of the crop of last year.

Year ending 31st Aug.	1849.	1850.	Year ending 31st Aug.	1849.	1850.
Bacon, packages.....	84,043	86,612	Lard, packages.....	489,847	530,385
Bagging, pieces.....	72,941	58,324	Lead, pigs.....	508,557	415,400
Beans, bbls.....	13,157	9,307	Linseed oil, bbls.....	1,409	1,098
Butter, kegs & firkins	57,972	51,058	Lard oil, bbls.....	8,840	14,712
Beef, packages.....	70,590	65,271	Potatoes, bbls.....	146,116	166,003
Corn meal, bbls.....	12,097	5,187	Pork, packages.....	587,421	573,357
Corn, sacks.....	1,706,312	1,114,897	Tallow, bbls.....	5,622	4,862
Cheese, boxes.....	54,287	62,809	Whisky, bbls.....	125,029	117,753
Flour, bbls.....	1,013,177	591,986	Wheat, bbls & sacks	238,911	57,508

If we now examine the trade on the New York canals, we find the same results. The quantity of wheat, of flour, and of some other commodities has increased because we have become the carriers of Canadian produce to a vast amount. Thus, independently of the consumption at home of Canadian wheat and flour, the export of foreign flour from New York in the last year, was 175,000 barrels, and that of wheat 184,107 bushels; but these quantities represent but a small portion of the foreign products of agriculture carried on those works.

By taking the trade from Buffalo east, we to a considerable extent exclude this cause of error, and doing so we find a great and almost universal decrease.

	1847.	1848.	1849.	1850.
Flour, barrels.....	1,857,000	1,249,000	1,207,435	1,088,321
Wheat, bushels.....	6,489,100	4,520,117	4,943,978	3,672,886
Corn.....	2,862,300	2,298,100	2,321,651	2,594,600
Oats.....	446,000	560,000	362,000	347,000
Rye.....	70,787	17,800	5,253	50
Pork and Bacon, bbls.....	63,750	66,000	80,000	66,000
Beef.....	38,900	58,000	52,000	84,000
Seed.....	22,530	22,020	21,072	9,764
Butter, lbs.....	5,079,000	6,872,000	9,714,000	5,298,000

In examining this statement it is essential to observe that the object of the tariff of 1846 was the substitution of agricultural for manufacturing labour, and that it has been done in the three past years, to the extent of hundreds of millions of dollars, giving us a right to expect *an immense increase* of raw products for sale; whereas, a large *decrease* has taken place in all except pork and beef, both of which are now to fall.

With regard to ASHES we have the same result, the amount transported in three years having been as follows:

	1848.	1849.	1850.
Barrels . . .	63,857 . . .	58,440 . . .	40,021

We have here precisely the same state of things that existed in 1837–8. We had then closed the mills and furnaces in order that labour might be compelled to seek agriculture, and yet, with an *increase* of population in the four years equal to almost three-fourths of *the whole population* of the prosperous kingdom of Belgium, so far from agriculture becoming more productive of commodities to be exchanged with other nations, it was becoming daily less so. We now produce less cotton, less tobacco, less sugar, less food, less wool, and less ashes, than we did three years since. How widely different was the case in the four years of the tariff of 1842, ending with 1846–7! Our power to export grew then from year to year, and now it diminishes with each succeeding year, rendering less and less necessary the building of ships, and increasing from hour to hour the difficulty of paying for the cloth and iron we import; and yet the avowed object of the present system was that of increasing the agricultural produce with which to pay for cloth and iron. How

long we can continue in the course of selling *less* and buying *more*, without bankruptcy, time will speedily determine.

To estimate at $100,000,000 the amount of CAPITAL applied in the years from 1843 to 1847, to the payment of labour employed in the creation of cotton and woollen mills, furnaces and rolling mills, machine shops, the opening of mines, the building of houses for workmen, is to put it at a very low figure indeed. The quantity so employed increased from year to year, and the last year must certainly have exceeded thirty millions of dollars. Next, to provide stock for those mills and furnaces, and to pay the wages of the men employed in them, must have kept in employment an equal amount.

With the passage of the act of 1846, the tendency to the building of mills and furnaces and the opening of mines diminished. As it gradually came into activity, that tendency ceased to exist. By degrees, the old mills and furnaces are being closed, and with each such operation capital becomes less and less productive, and the "abundance of money" increases, and this is regarded, by many shallow, pretenders to a knowledge of political economy, as one of the evidences of "increased prosperity."

The necessary consequence of this state of things is, that vast sums remain in bank at the credit of depositors, drawing no interest, and to be loaned out to speculators in lots and lands, railroad and canal shares, to aid in raising prices, by which *the few* may profit, while *the many* must ultimately be ruined.

The following table of the movement of the banks in the city of New York, will illustrate the course of operation that always follows the closing up of the usual modes of employing capital, and precedes an explosion:

	Loans.	Specie.	Circulation.	Deposites.
Sept., 1848	$40,097,890	$4,740,847	$5,726,891	$20,353,365
Dec. 31, 1848	41,031,247	5,850,424	5,783,498	21,443,148
Feb. 9, 1849	43,521,441	4,523,775	5,460,399	22,928,554
June 30, 1849	48,515,471	9,586,308	5,539,572	27,227,134
Sept. 12, 1849	49,922,265	8,022,246	5,990,100	28,482,228
Dec. 31, 1849	53,360,050	7,169,016	6,013,349	28,868,488
March 30, 1850	56,420,647	6,861,501	6,725,688	32,067,937
June 30, 1850	59,888,176	10,650,290	5,918,786	35,861,139
Sept. 28, 1850	62,788,151	9,056,846	6,692,063	37,010,382

Here are no less than thirty-seven millions, *yielding no interest to their owners*, of which twenty-eight millions are loaned out for the profit of the institutions with which they are deposited. As a matter of course, dividends are high, as will be seen by the following table of

Bank Capital and Profits, Boston and New York.

	BOSTON.			NEW YORK.		
	Capital.	Dividends.	Per ct.	Capital.	Dividends.	Per ct.
1845	17,480,000	1,112,100	6,36	33,084,100	1,433,901	6,21
1846	18,480,000	1,196,000	6,57	23,084,100	1,536,312	6,62
1847	18,180,000	1,281,300	7,00	23,084,600	1,572,158	7,09
1848	18,920,100	1,428,350	7,55	34,284,100	1,883,971	8,10
1849	19,280,600	1,477,350	7,66	24,457,890	1,982,998	8,10
1850	20,710,000	1,534,000	7,68	27,440,070	2,228,967	8,80

In 1846, the banking capital of both cities paid little more than 6 per cent., because there then existed a demand for capital to be employed in the building of mills and furnaces, and for a thousand other purposes connected with the progress of manufacturing industry. The *owners* of that capital *then* received its profits. Now, *they receive nothing*, while banks make eight and nine, and even ten per cent., derived from loaning the capital of others, as will be seen by the following semi-annual dividends of the banks of Philadelphia:

Northern Liberties.....5	Western Bank.....5
Manufacturers' and Mechanics.....4	Kensington.....5
Commercial.....4	Penn Township.....5
Southwark.....5	Mechanics.....6
Philadelphia.....5	Farmers and Mechanics.....5

We have here precisely the state of things which preceded the downfall of 1837. Banks made large dividends, derived from lending to speculators the capital of others who could themselves find no safe and profitable employment for it, and yet that system, like the present, was specially intended to diminish the power of the *few* over the *many*. How it has succeeded in accomplishing that object, the list of dividends will show. No better evidence of the unsoundness of a system, and its generally impoverishing effect, could be presented than is to be found in such a list as the one here presented. When the large and small capitalist could freely invest their savings, dividends were limited to about the legal rate of interest, and all were equal. Now that it cannot be so invested, dividends are large, and the little capitalist has nothing. This would seem to be *aristocratic*, yet it is the natural result of a tariff styled *democratic*.

The natural consequence of this "abundance of money," as it is called, is, that every man desires to avail himself of the opportunity to improve his lot, or his farm, by having a road. Legitimate trade diminishes, and every town, every city, and every county, is anxious to avail itself of the opportunity to give its bonds in payment for a road, or a bridge, or some description of "improvement" that may enable it to draw to itself the business that now goes elsewhere. Cities run races in the building of steam-ships, and the ordinary modes of obtaining capital for the purpose not being sufficient to gratify the eager desires of speculators, Congress is besieged with applications for lines of ships to all the ports of Europe, Africa, and Asia, and lines of road from north to south, and from east to west, covering the whole ground from the Lakes to the Isthmus of Panama, and from the Atlantic to the Pacific.

The whole energies of the nation are now given to *machine-making*, at an expenditure so enormous, that when the day of trial comes, as come it must, the *mania* will be regarded as fit only to be chronicled on the same page with our own of 1836, and that of England in 1846. The government is performing its part of the work by the establishment of numerous lines of ships, various regiments of troops, the grant of land for making roads, for military services, and for various other purposes, all involving a vast expenditure, or sacrifice of revenue, for the same purposes as those to which was applied the surplus revenue of 1836, and to produce *inevitably* the same results. The people are building up *machines*, in the form of new States, upon one of which, California, there has been expended an amount of labour and capital sufficient, had it remained at home, to produce cloth, iron, and other commodities, to the extent of at least a hundred millions per annum, and that result obtained without the enormous loss of life* and sacrifice of

* The letter of our California correspondent, printed on Saturday morning, and relating to the overland emigration to the new State and the prospects and sufferings of the emigrants, was calculated to produce a just, though painful, picture of the terrors of the route. When we are told that seventy thousand emigrants are this year on the road, we feel, such is the wonderful character of everything about California, scarcely disposed to be surprised, or to pause to think about the matter; but our attention is arrested and our feelings are stirred, when told that not more than one-third of this immense host can pass the Sierra Nevada before the winter sets in, rendering the crossing impracticable, and that the remaining two-thirds must therefore winter in the Great Basin, as it is called, or in those desolate regions of the

morals that have accompanied the settlement of this new state. We have established there the largest gaming-house in the world, and most of the persons who visit it, as well as most of those who send merchandize to it, are either already ruined,* or in a fair way to become so. Another such *machine* we are building up at the Salt Lake, and a third in New Mexico, while hundreds of thousands are flocking to Texas and Arkansas, Wisconsin, Iowa, and Minnesota, producing a *necessity* for the construction of new roads, and diminishing every where the *power* to improve old ones, because of the dispersion of the population, the loss of labour, and consequent diminution of production. Everywhere it is the same. The new roads make fortunes for the *middlemen* who negociate the loan, and for the happy owners of the lands and lots, and the makers of these fortunes build palaces, while the term of life of many of those fortunes is dependent entirely upon the length of time that is to elapse before it shall be discovered that banks which make large dividends at one time, must inevitably make small ones at another, when large fortunes will shrink into small ones, as was the case at the close of our former road-making mania, and the recent one of England.

It seems everywhere to be forgotten that the emigrant ceases to be a producer from the moment he leaves his farm, his plantation, his furnace, mill, or mine, and that then for a year or two he must be a consumer only. The makers of roads must be fed, clothed, and housed. So must be the settlers of California and Utah, Iowa and Minnesota, Texas and Arkansas. The palace-builders must be fed and clothed, and yet, this vast body of men produce nothing with which to feed or clothe themselves. They are producing *machines*, to be used in aid of future production, and the nation is exhausting itself in feeding and clothing them while engaged in the work. From day to day, we are producing less cotton and tobacco, less wheat and pork, less cloth and iron, less, in short, of all the commodities required for the use of man. The price of cotton goes up because, notwithstanding the increase of population, we produce scarcely more than we did ten years since. That of rice goes up because we have less to export than we had sixteen years since. That of tobacco goes up because we have less to export than we had eighteen years since. That of wheat goes up because we have almost none to export, and have become large importers of it from both Canada and Chili. That of corn goes up because we have little to spare. Pork rises because corn is scarce.

Of SPERMACETI OIL, the average receipt in the four years from 1843 to 1846, was.....140,000 bbls.
That of 1848 was.....107,876
And that of 1849, only.....100,944
Last year gave but 86,157 barrels, a reduction of *thirty eight per cent.*

Shoshoco desert beyond the Salt Lake, where, as the letter informs us, water can be sold for $10 a pint, and $700 be refused, by a trader, for "one little cup full."—*North American.*

* RETURNED CALIFORNIANS.—The St. Louis *Intelligencer*, noticing the return to that city of seventy-five Californians by way of New Orleans, says:—

From what we could learn, we are inclined to believe that a large majority return with very little money. Several had a few hundred, or perhaps thousands of dollars, but three out of five return worse off than they left, and many had not enough to defray their expenses home. From inquiry of the clerks of both boats, we are informed that a very small amount had been deposited with them for safe keeping, and it was the general impression, although the Californians were very quiet about the matter themselves, that they had not made much out of the adventure, certainly not enough to induce them to try it again. It is believed that the whole amount brought by the seventy-five or eighty men will not exceed, in gold dust, coin or valuables, $20,000, and it may fall much below this sum. They are principally from the northern part of this State, Illinois and Iowa, and expressed much anxiety to get back to their homes, and our word for it, that not one out of ten will ever think of California again, unless it be with feelings closely allied with terror.

With a production thus diminished in *actual quantity*, we need not be surprised to find that prices rise, and that thus the man who labours finds a constantly increasing difficulty in obtaining food, clothing, fuel, and light, and yet lists of prices like the following are regarded as evidences of "prosperity." They are really evidences of a state of things that leads to those combinations among workmen for the purpose of raising wages, *which always take place when production is diminishing.* Such combinations abounded in 1836, and they are now rapidly growing in number, and must continue to grow as capital and labour become less productive of the commodities for which men desire to exchange labour, and as prices consequently rise.

Prices of Leading Articles in the port of New York, July, 1850.

	1846. Price.	1847.* Price.	1848. Price.	1849. Price.	1850. Price.
Ashes, Pots, 100 lbs	$3.50	4.87	5.00	5.75	5.87
Coffee, Brazil, 100 lbs	7.75	6.75	6.75	7.50	10.50
Cotton, fair, 100 lbs	8.75	12.25	6.87	9.50	14.25
Flour, State, bbl	4.06	5.12	5.18	5.00	5.31
Wheat, Ohio, 10 bu	8.50	11.00	11.00	11.00	11.20
Hemp, dew-rotted, ton	90.00	110.00	125.00	175.00	125.00
Sole Leather, Oak, 100 lbs	17.00	22.00	22.00	21.00	22.00
Tar, bbl	2.00	2.50	2.50	1.87	1.62
Oil, Whale, 100 galls	32.00	33.00	33.00	40.00	52.00
Beef, Mess, bbl	6.75	13.50	13.00	13.50	10.00
Pork, Mess, bbl	9.56	14.50	11.12	11.00	10.56
Butter, Ohio, 100 lbs	12.50	12.00	12.00	10.00	10.50
Rice, 100 lbs	3.00	4.87	3.25	3.00	3.37
Whiskey, 100 galls	20.50	24.00	22.50	24.25	26.00
Tobacco, keg, 100 lbs	7.00	7.25	6.00	8.50	10.00
Wool, Fleece, 100 lbs	33.00	45.00	42.00	38.00	45.00

If the reader will now turn back to page 17, and compare the present prices with those of the closing years of the tariff of 1828, to wit, 1832, 1833, and 1834, he will find but little difference between that period and the present. That done, I would beg him to remark, that at that date our production was increasing with great rapidity, *because our home market was rapidly growing*, and prices were maintained because our necessity for depending on foreign markets was diminishing. Now our production is daily diminishing, and farmers and planters are compelled to look to short crops as the only means of keeping up prices, because our home market is diminishing with the diminished power of producing cloth and iron to exchange for food and cotton.

* The year in which Great Britain made so many roads, and created a famine in England, and the potato-rot created one in Ireland.

WHAT OTHERS SAY OF OUR POLICY AND INTERESTS.—In *Blackwood's Edinburgh Magazine* for January, the editor, after frequent quotations from, and hearty approval of, Mr. Carey's writings in the *Plough, the Loom, and the Anvil*, and of the course recommended in this Journal for the development of our own resources, says—"By following such a course, she must, as her population increases, grow in greatness and in might, as must every nation wherein labor is estimated and cherished according to its proper value, and the rights of the domestic producer and workman guarded with untiring vigilance."

INADEQUATE ENCOURAGEMENT TO HOME INDUSTRY.

HOW IT INJURES THE FARMER.

For the interest of the American Agriculturist, the best of all importations is the importation of *men*, for the obvious reason, that every one who takes up his residence among us, adds so much to the productive power of the country. But immigrants from foreign countries are more especially beneficial to Farmers, when the policy of the Government is such as to tempt them to the *manufacture of our own raw materials:* for all their wages are sure to be invested in food or raiment—in *something that comes out of the land;* and how much better to have these wages expended and kept here in circulation in our own country, than to have them go abroad in payment for the products of foreign labor!

It becomes, then, an interesting question, how these consumers of the products of our agriculture are to be brought here in the greatest number?

A very large proportion of those who do come, are brought by means which are contributed and sent to them by their relatives who have preceded them. The lower the wages for manufacturing labor, the greater will be the number thrown for subsistence on the plough, and the less must be the surplus which remains to be sent abroad to transport hither those who are not only thus deprived of the means of coming, but whose desire to come is impaired and extinguished in proportion as you extinguish his hope of bettering his condition. Cannot every Farmer and Planter of common sense, then, understand how much he is concerned in the *diversification and reward of labor*, which attracts men to come here to his side, and there constitute for him able customers to buy and consume the products of his plough and his orchard? Quoting from Mr. Carey's essay on the Harmony of Interests, the distinguished Editor of *Blackwood's Edinburgh Magazine* says: "We hold by this proposition, well understood and energetically supported in America, that '*When a nation makes a market at home for nearly all its products, other nations have to come and seek what they require, and pay the highest price; and that when it does not make a market at home, markets must be sought abroad, and then sales must be made at the lowest prices.*'" "If this be true," says the foreign Reviewer, "it will follow that the way to sell at the highest prices, and to buy at the lowest, is to *buy and sell at home.*"

That it is true, any Farmer of common sense may satisfy himself by supposing a familiar case; as for example:

THE DIFFERENCE BETWEEN GOING TO SELL, AND WAITING FOR YOUR CUSTOMER TO COME AND BUY.

Farmer Martin, we will suppose, has a surplus horse that he can well part with, and wants to buy a choice ram to cross his fine flock, that is beginning to decline from too long breeding in and in. His neighbor Thomas has a fine ram more than he wants, and is deficient in a horse for all work. Neither of them knows the wants nor the surplus of the other, and the question is, which of them places himself most in the power of the other, and deals to the least advantage—Martin, who takes his horse to Thomas's farm, and exhibits him for sale, and makes known his necessity for getting a good ram; or Thomas, who has his ram tied

and thrown into a cart, and goes to Martin and says: "Martin, I want to sell you a ram, having more than I need; and am deficient in a horse, having lost one last week by the bots. Have you one that you can part with?"

Is it not clear that the one thus applied to, and to whom the other had disclosed his wants and his superfluities, would at once perceive his advantage and begin to fight shy? Would he not at once hold back and appear at first indifferent about buying or selling? And is it not certain that the traffic would end in an advantage on the side of the one to whom the other comes with his commodity for sale? If not, he must either be very green at a bargain, or more than usually disinterested. Well, just so it is with nations. We are constantly pressing our flour and beef, cotton, pork, butter and cheese on foreign markets, instead of building up our own market by exciting competition for the products of the plough and the spade, the dairy and the orchard, among customers here at home, employed and well paid in other and thriving industries.

So, too, with the *tobacco planter*, who looks to foreigners to buy his crops. If by the protection of American manufactures, he would lead those in Europe who are now prevented from snuffing and chewing and smoking his tobacco, by the high duties levied on it, to come here where they could consume ten pounds for one, it would not be many years before he could sell ten pounds where now he can sell but one. All this is perfectly plain, and, but for party blindness, would be acted upon; and this country, instead of being now, as the *Edinburgh Review* calls us, "a British colony in a matured state," would be independent in fact, as we are only in name, and would, as another Edinburgh Reviewer still more recently says, "from that day forth grow in greatness and in might, as must every nation wherein labor is estimated and cherished according to its proper value, and the rights of the domestic producer and workman guarded with untiring vigilance." Thank Heaven, even this moral ophthalmia—party prejudice—is giving way before the light of reason and the force of enlightened and true patriotism.

THE LATE SAMUEL HAMBLETON, OF MARYLAND,

AS A FARMER AND AS A MAN.

If the nicest sense of honor and a never-failing observance of propriety; if true courage and unaffected piety, combined with a lofty patriotism founded on a just appreciation of the advantages of his own country; if all these could give claim to affectionate and enduring remembrance, then assuredly will the memory of the late Samuel Hambleton be ever fondly cherished and venerated by all who knew him; for who of them all will not be prompt to testify that he was, indeed, honorable, brave, pious and patriotic?

True, as has been said, he was, at the time of his decease, the senior Purser in our Navy, and by the selection of her Commander was attached to the flag ship in the celebrated battle of Lake Erie. But he was yet more, for he was the *trusted and bosom friend of the gallant Perry*, standing by his side in the hottest of the fight, and though "non-combatant" by commission, contributed, with the bravest of the brave, to the glorious issue of that second—may it be our last—*war for Independence on England!* Liberal, without prodigality or ostentation; friendly, without

unseemly familiarity, and social without excess, it was yet easy to perceive that his many and eminent virtues were founded, not more in his just and kindly nature, than in conscientious principles, well considered and worthy of the profoundest admiration.

But exemplary and stainless as was his long official career, accounting with scrupulous exactness for the millions committed to his charge, and always ready, in moments of peril to his country's flag, to go as far in its defense as he who went the farthest, it was yet not on ship-board, or in the glare of public service, that he won most upon the esteem of his friends, or that he found for himself the most congenial element of employment or duty. No! it was for the various and engaging occupations of agriculture, and the tranquillity of domestic scenes, that his taste was at once the most decided and cultivated. It was in the shades of his beloved "PERRY CABIN," consecrated to filial affection, to friendship and to study, that he sought and found his highest gratification, and his purest enjoyments.

> "Oh, bless'd retirement, friend to life's decline,
> Retreats from care, that *never must be mine*,
> How happy he, who crowns in shades like these
> A youth of labor with an age of ease!
> Who quits a world where strong temptations try,
> And since 'tis hard to combat, learns to fly."

Here it was that, surrounded and beloved by relatives, friends, and dependents, he could most quietly and effectively enjoy and perform the tender and responsible relations and duties of brother, master, neighbor and friend—with what uniform fidelity and kindness, let brothers, sisters, servants, neighbors and friends answer for him.

As a practical farmer, Mr. Hambleton was in most respects a model worthy of the closest imitation. First and above all be it said for him, that his humanity towards every thing dependent on him was no less remarkable than the soundness of his judgment in the practice of his favorite pursuit. With him it was a cardinal point that every thing should in season *be well housed and well fed*, and that no cruelty or abuse should be committed or permitted under any circumstances. The next rule was, that the great machine of all, the Land, to which all looked for food and sustenance, should in its turn be well fed and sustained. For this purpose all its refuse products were carefully preserved and compounded with sea ore or lime, or fish and other substances, for which the river and its shores, the woods and the swamps, were laid under contribution. No farmer better exemplified that golden rule in agriculture, no less than in morals, that where much is given, there may much be justly required. Admitted that he was fortunate in possessing the means to improve his farms, does that impair his claim to the higher credit of possessing the judgment and liberality to apply them with effect? While his estate was in a course of steady improvement, it was neatly and well managed in its details; not by the cruel exactions of any venal task-master, overseeing "on shares," but according to his own general directions, carried out by his faithful head servant Washington Mitchell, bought on his own entreaty, and in whose fidelity and obedience, and that of his fellow-servants, their beloved master had a right to contemplate with self-complacency the fruits of his own care and benevolence. So considerate and comprehensive indeed were these, that were it possible for Instinct to rise to the level, and to exercise the functions of conscientious Reason, there

is not a living thing that dwells at PERRY CABIN, that might not lament, in the death of their late owner, the loss of one who was at all times careful for their comfort and happiness.

Farming, with our lamented friend, was not the resort of necessity, nor, as with too many who follow it, a mere animal drudgery. No! in sad recollection of many proofs of it, we may add, that he was well versed in the principles of his chosen pursuit, evincing, by his patronage and study of its literature, a high estimate of its dignity, as an intellectual calling; and by his example in the performance of the humblest duties assigned by the ancient and respectable Agricultural Society of Talbot county, (of which he was a beloved member,) his belief in the obligation of all who follow agriculture, to contribute to its elevation and improvement.

For the truth of all that is here said, and especially as to his decided partiality for rural life, and his preference, not alone for his own country, but for his own State, and the very county that must lament, while it is proud of such a son; the writer of this feeble tribute to his worth might go back for thirty years, for many proofs, besides the following, addressed to the present *Editor of the Plough, the Loom, and the Anvil*:—

The following letter to the Editor is from a highly valued friend, an officer of the Columbus, and was not intended to meet the public eye. We, however, take the responsibility of presenting it to our readers without the name of the writer—a name which, if subjoined, would give it additional interest with all who have the happiness to enjoy his acquaintance. Here again let us emphatically congratulate the friends of Agriculture, on the generous and lively and increasing interest which has of late years been manifested by our Naval Officers in the agriculture of our country. Not a ship returns from abroad that does not bring with her valuable contributions to our stock of agricultural materials and intelligence. Great and lasting will be the benefits that must accrue to our country from this provident and praiseworthy disposition among the intelligent officers of our navy. We will not pass by this opportunity of again suggesting, though not in a manner worthy of its importance, the propriety of providing, out of some special fund, a small select library, for the use of the officers of each ship, to consist of elementary works on Botany, Natural History, with voyages, travels, &c. &c. Having these sources of amusement and means of edification at hand, young officers would have recourse to them, instead of other and oftentimes deleterious amusements; a taste for books, and a habit of research would insensibly grow upon them, which, united with the advantages of travel into every clime in the public service, would infallibly make the most of our officers, what many of them now are, an ornament to every society, and an honor to their country.—*Editor.*

COLUMBUS, Port Mahon, Island of Minorca, Feb. 23, 1821.

Dear Sir:—Your obliging letter reached me at this place yesterday, and afforded me much pleasure. Among the papers which you were so good as to send me, was one containing your address to the Agricultural Society, which I have just read with high satisfaction. Your eulogy on the mule I doubt not is well deserved. In our country they are generally badly broke, half starved, and seldom curried or stabled.

At Gibraltar I saw some of fine size and form, and as fat and sleek as your dray horses. They are used by the most dashy officers for the saddle, and appeared to move very pleasantly. In Maryland, a gentleman never thinks of riding a mule; he would be laughed at, such is the force of prejudice! I am of opinion that such mules as I speak of ($14\frac{1}{2}$ and 15 hands high) are more proper for private carriages, if not public stages, than horses. They are *true*, not easily alarmed, great trotters, very hardy, and may be kept at one half the expense. No one is a greater

admirer of that noble animal the *horse* than myself—I have owned some very fine ones; but I am, by experience and a regard to truth, compelled to say, that he is very expensive, and has been the ruin of many a thoughtless young buck in our country. I was much struck by the comparison which I once made of the expense of feeding a *man* and a *horse*. The allowance for a laborer in Maryland is a peck of corn and three and a half pounds of salt meat per *week*, which is not sufficient (supposing hay to be bought with the meat) to feed a horse properly more than *one day*.

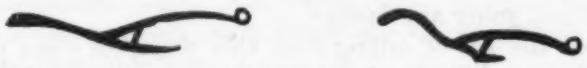
I found, on inquiry, that the fine mules I speak of are the produce of the *horse* and the *ass*. This is a mode of propagating them quite new to me, and I am assured it is incomparably the best. If so, it is an important fact, which ought to be known to all breeders, as she asses can be kept much cheaper than brood mares. (1.)

Asses and mules are used here for the plough, the saddle, and particularly for burdens, there being no carts or any kind of wheel carriages in the island. The loads they carry are wonderful. Had I not made the experiment I should never have believed the ass fit for the saddle. I have rode them frequently, and found them very pleasant, and more suitable to a hilly and stony country than the horse; I rode one about twenty-four miles in one day.

I calculate upon taking home a male jack, and a pair of the cream-colored Tuscany cattle, so famous for the yoke. Should I meet with such a horse as you describe I shall add him to my stud. I do not believe, however, that there is a finer breed of horses in the world for the saddle than the *Tom* breed in your neighborhood, and I would recommend to you to procure a stallion of the pure blood.

I am of opinion that the ox, for farming purposes, is superior to all other animals. In our part of the country he seldom has a fair chance, and it is no wonder that he is not a favorite. I saw many of the Tuscany oxen at work at Leghorn and Naples. They are tall, not thick set, and remarkably docile. In Talbot county of Maryland, they have, I think, the same breed. It is known by the name of Boardley's—and were, if I mistake not, imported by the patriotic gentleman of that name, who, some thirty years ago, wrote on agriculture and rural economy. They are much esteemed there for the draught. The late Colonel Smyth and Mr. Singleton had a number of them; and my brother Edward had a bull of that breed which he esteemed highly. (2.)

I sent home some beautiful white wheat last summer from Leghorn, and if I have an opportunity, I will procure more of it. I shall take several barrels of the seed of the Lupinella, which is much esteemed in Italy. You already have this seed; but it is not yet abundant. My friend, Mr. Folsom, has brought me a number of seeds of various kinds, from Smyrna—among others, the seed of pears and melons of a very superior kind. I have been promised some information respecting the agriculture of this island, by our Consul, an extensive landholder; but his numerous avocations will, I expect, put it out of his power to furnish it. The country is hilly and rocky. The plough used by these industrious people is very simple, and suits their land. It is formed of *two pieces*, *one* the handle, the other the *beam*, thus :—



It is pointed with a piece of iron, with a socket, resembling an ox's horn straightened; it has no share, no mould-board, but a peg or stanchion on

each side, inclining outwards, intended to spread a furrow. A man follows (when seeding) digging and levelling, where necessary, with a short-handled hoe, something like a pick-axe. After he is done the ground looks like an onion-bed. To prevent their lands from washing they make stone walls round the steep hills, which are cultivated to the tops; even mount Toro, which I visited, more than 2,000 feet high, is not an exception. Wheat and barley are their principal grain crops. They raise all kinds of vegetables and fruits—figs, grapes, oranges, lemons, peaches, pears, apricots, and, what is singular in this country, excellent apples. Everything is sold by weight, even fire-wood, which is very scarce.

I was much struck with the oddity of some of their teams. Sometimes we met with an ass and a cow yoked together; then a mule and an ox, and sometimes a mule and an ass; some teams were of oxen and others of mules, as with you. (The yoke and bow are used, not only for oxen, but for mules and asses.) Strange as these associations are, they are nothing to that mentioned by Dr. Cleghorn, who wrote fifty years ago. He speaks of the *hog* and *heifer!* but I think he must have been mistaken.

The tenant here farms on shares. The landlord stocks the farm. Nothing is sold but by his permission, after which the proceeds, in money, are brought to him, just as received. He divides it into two piles, and gives the farmer his choice. At stated periods the tenant has to deliver to the proprietor a fat sheep, bullock, hog, &c., as may be agreed upon. The people, generally speaking, are miserably poor; hardly ever taste meat of any kind, and are covered with rags, filth and vermin. Everything I have seen in this country, even the best part of it, has tended to make me think more highly of my own, and when I get home I calculate upon being a pretty good patriot. With the industry of these people, our country might be made a paradise. We are too apt to overrate the "old countries," and to imagine that they are happier and wiser than our own. When we hear of *grapes* and *oranges*, and *wines* as cheap as cider, we think of the garden of Eden. In some parts of the Mediterranean, the country is delightful, the soil rich and the climate delicious; but the government is execrable, and the morals of the people corrupted.

In Italy they have the advantage of us in a few particulars—climate, and fruits of a particular kind. But what can be finer than the fruits of our country—our strawberries, our raspberries, gooseberries, cranberries, whortleberries, blackberries, and many others of the berry family? Our apples, peaches, plums, &c., are or ought to be equal to any in the world. What country excels us in beef, pork, mutton, poultry, &c.? Is there any part of the globe which equals us in *oysters* and *bacon?* and in what part of Europe is *hominy* known? If I had no other objection, this last would be insuperable to me; *I would not live in any country where I could not get this dish.* The beef of this island is very indifferent—quite insipid. In Tuscany the meats are good, the mutton in particular. I have heard of one of our countrymen, a Kentuckian, who came out to see Europe. He landed on the high, rugged hills of Spain, opposite to Gibraltar, and, looking round with astonishment, asked, "Is this your boasted Europe? I have a better country at home." So he very wisely returned without going any further.

We are on the eve of sailing from this place, for some part of Italy, and it is with some difficulty that I find time to write you this hasty letter, and beg you to make due allowance for my situation. I send you a few

extracts, to be used as you may think proper; they were made several weeks ago.

(1.) We have strong doubts about the correctness of this information. It is well understood in Kentucky that the best mules are obtained from *large blooded mares;* and it may be considered a principle in breeding, that size is promoted by greater size of the dam, in proportion to the size of the sire.

(2.) The writer and his estimable and accomplished brother, Purser John N. Hambleton, brought among the best jacks ever imported, and their progeny have been distinguished at Maryland cattle shows. The Tuscany cattle, brought by the writer and by Commodore Bainbridge, were of a light iron-gray color, very much the same color and appearance as the Hungarian bull and cow selected by General Webb, for Mr. Colt of Paterson. Those brought in the Columbus came into the hands of the editor of the P., the L. and the A., and went finally to Mr. Middleton, South Carolina, where we understood they contributed very much to the improvement of their working oxen. Their form was lighter and rounder than Mr. Colt's, but otherwise the resemblance was very strong. One reason for their going to South Carolina was a conviction of their adaptation to a hot climate, from the fact that in Maryland in the hottest weather they seemed to prefer sunshine to shade. We should like to have some further account of them and their descendants, but how can we expect it, after receiving the following from our agent at Charleston? Alas! what strange things one is destined to see if he lives long enough. Without one iota of abatement in our attachment to the South, or of our ambition to contribute in some degree, however small it may be, to their prosperity, we would ask, What have we done to incur this proscription since a distinguished association of Carolina planters voted to him, who is now thus repudiated, a gold medal, to be made of the virgin gold of South Carolina, for our contributions to the agricultural knowledge and prosperity of the country?

"J. S. Skinner, Esq.:

"*Dear Sir:*—I regret that I have to request a discontinuance of your valuable journal, the '*Plough*, &c.,' at the desire of the subscribers to it, in consequence of the present state of feeling exhibited at the North and East. The Southerners have determined, as far as possible, to carry out their intention of non-consumption and intercourse. Respectfully yours, ——— ———."

AGRICULTURAL IMPROVEMENT IN NEW-YORK.

Professor Mapes has lately asserted that "the wheat crops of New-York are less than half per acre what they were thirty years ago;" and adds, "Every bushel of corn, bale of cotton, barrel of resin, or other commodity we now send to Europe, and which is consumed there, places just so much of the ultimate constituents of plants in their soil for continued and repeated reproduction, and removes it from ours." "Many farmers," says the Professor, "are still living and carting manures upon their poor farms, who, in the Mohawk and Genesee Valleys, threw their manures into the river when younger."

In confirmation of this declaration of Professor Mapes, Mr. Willoughby, in his late address at Baltimore, stated the yield of the far-famed Genesee Valley to be not exceeding ten bushels of wheat to the acre; and Professor Johnston, of England, "standing as he does," according to Mr. Baldwin of Syracuse, "at the *head* of a profession which he so much adorns," showed that "the farming interests of New-York are in a process of deterioration," and "the average of all crops *continually diminishing*," "notwithstanding," says Mr. Baldwin, "our farmers, as a class, are intelligent, educated men."

Yet there has been no want of Agricultural Societies in New-York;

for, as far back as April, 1819, (32 years ago,) that State appropriated $10,000 to be divided among the several Counties in certain sums, on each County forming a Society and raising a like sum; and moreover, the act requires that each person to whom any premium shall be awarded for any agricultural product, shall make an accurate description of the process used in raising the crop, or of feeding the animal, as may be, and shall in all cases describe the nature of the soil, kind and quantity of manure, the state thereof, &c. &c.; and moreover, the law provides for the preparation and publication, at a very great expense, of the Transactions of these Societies, which, for 1848, amounted to about 1,000 pages. The act before us provides $1,000 for the purchase and distribution of seeds, &c.

And yet Professor Mapes, very high authority, tells us that the State does not now produce half as much wheat per acre as it did when that law passed!!

Does not all this show, that though Agricultural Societies are very exciting at the seasons when they occur, and serve to relieve the "dull routine" of rural life, they somehow do not seem to reach the bottom of the difficulty? That there is yet some deleterious influence at work corroding the heart of American Agriculture, beyond the mere want of knowledge, and which mere exhibitions of big potatoes, and fat hogs, and large ears of corn cannot supply? And what is that something? It is because we do not work up our own materials and resuscitate the land, by applying to it the refuse of its products; it is because we are ever wandering over the world looking for dear markets to sell and cheap ones to buy in, instead of cherishing our own market; it is because we keep the consumer and producer far asunder, instead of bringing the Loom and the Forge near to the Plough and the Harrow! That's the cause of the decrease in the average products of land, and until we discover and rectify *that*, we may give premiums till doomsday. When we have determined that the Manufacturer shall take his place by the side of the Agriculturist, the policy of British merchants to the contrary notwithstanding—then, and then only, will agriculture improve.

The late Thomas Law, of Prince George's, Maryland, who had a thousand times more genius and more knowledge than those who sneered at his want of practical information, in one of his agricultural addresses to the Prince Geo ge's County Agricultural Society, thirty years ago, said, "Had I a starling like Sterne's, I would teach it to exclaim, *Home market! home market! home market!*"

How to make Cows Calve in the Day-time.—Every one has felt the inconvenience of having his cows calve during the night. In all seasons, but especially in winter, this is exceedingly annoying, and not only demands continual useless watching on the part of the cow-keeper, but also often, indirectly, causes the death of the calf and its mother. Now it has been ascertained by a person living in the neighborhood of Utrecht, that a cow with calf milked for the last time at night instead of in the morning, calves in the day and not at night. Out of 30 cows on which the experiment was tried, only 3 or 4 are mentioned by M. Numon, professor of Agriculture at Utrecht, as being exceptions to the above rule. As confirming the above statement, we may mention the fact, that a large farmer in the Campine has also tried the same plan with success.—*Flore des Serres.*

PEAT CHARCOAL—ITS USES, AND HOW PREPARED.

When, in our last, we suggested the use of charcoal for promoting the rapid growth of tobacco plants, we had not seen the following, which we find in a pamphlet highly commended by Doctor Lindley, and which we imported for the sake of what it contains about the cultivation of various vegetables:—

PEAT CHARCOAL AS A MANURE.

The fertilizing qualities of Peat Charcoal, even in its plain state, are very great; but when mixed with night-soil, its good properties are of course much increased, and in the latter condition a less quantity is required for an acre. Farmers often fail in raising small seeds, turnips, for instance; more especially in the south of England. The turnip seeds are sown in a poor hot soil, without any stimulant being immediately available. The seeds in consequence vegetate slowly, giving the fly time to eat the seed-leaf before the rough leaves have been produced. This can only take place in poor soils. On the other hand, *market gardeners never fail in obtaining excellent crops*, however hot the weather may be, a result owing entirely to their land being rich. This fact, therefore, should *induce farmers to mix their small seeds with powdered Peat Charcoal before they sow them. All complaints of their failing then would cease.* Every thing ought to be done that can be done to *stimulate your plants. They cannot grow too fast.* Farmers, like gardeners, do not want to occupy the land six months with one crop, if the same can be grown in four. *Charred Peat might be used in many ways.* It might be employed with advantage in cow-houses, piggeries, and in dung-heaps. When potatoes are planted, if Charred Peat is used instead of dung, the young crop will have none of those scabby appearances which always occur where dung is used in the furrow; and the latter offers a great harbor for all sorts of insects. The late Mr. Smith, of Deanston, informed me that, in the island of Lewis, he was burning Peat and using the ashes as manure, after the plan which I recommended two years ago. It answers admirably. The farmers of the south of England have no idea what Peat Moss or Bog is; they imagine that it is simply heath soil, which is a poor, sandy, black mould, generally covering the surface of the ground, not more than six or eight inches deep. On the other hand, I have seen Peat Moss twenty feet deep, and in some places thirty; all being one solid black mass. The Irish Amelioration Society ought to manufacture two sizes, one as large as the lump sugar we put into our tea; this size would keep strong clay land opener, warmer, and drier; the lumps of Peat would also retain moisture in the earth longer in hot dry weather, and pieces of this size would be more lasting as a fertilizer. (1.) The smaller size would suit light land, and would be serviceable for top dressings. It would be a pity to burn such valuable manure, or it could be easily compressed in a machine and dried; it might then be bought in London readily, and it makes the best of fuel. (2.) *Powdered Charred Peat* might also possibly make the basis of gunpowder quite as well, and perhaps better than wood charcoal. (3.) If Mr. Roger's plan of mixing the Charred Peat with night-soil could be carried out on a large scale, it would be much better than allowing the night-soil to be emptied into the common sewers, making them what may be termed elongated cess-pools, from whose chimneys or "gully holes" are evolved the most deleterious gases. Peat Charcoal has been proved to be a perfect deodorizer, and *mixed with this material our town filth might be carted to the country and made available at once.* This is the more necessary, as the hardness of the times will not now allow the farmer to send his wagon and four horses, with a man or two, to fetch home a load of dung, much of the goodness of which has been washed and heated out of it. For my own part, I have for some years used nothing but liquid manure water, salt, soot, and wood ashes, but now I shall employ Charred Peat. *All the plants I cultivate grow most luxuriantly in it plain as well as mixed with night-soil.* To amateurs I am sure it will prove a boon, as it will do away with the filth and nuisance of dung.

Since writing the above, I have *tried all sorts of plants in it. It grows a young plant very fast.* It will be famous for Pineapples instead of sand to mix with the mould, and for a Vinery border for mixing with the soil will be first rate because it will keep the earth porous, and give out its qualities for many years; especially

if pieces are used as large as lumps of sugar we put into our tea. And I am quite satisfied that no more sand of any sort will be used after this excellent Charred Peat Manure is made known. (4.)

(1.) It was first within our notice used in that way, with his flowers and vegetables, by Doctor Heiskell at Washington, D. C., some years ago, with obviously powerful effect.

(2.) It is used as fuel as far south as Long Island, N. Y., and north of that to Maine, we presume.

(3.) It will be seen in the extract we give below that it is *peculiarly fitted for that purpose.*

(4.) Why would it not answer a capital purpose and be profitably used in Carolina, in the cultivation of the sweet potato, where Doctor Sparkman says the soil to be preferred depends so much on the character of the manure, or fertilizing ingredient to be used? Various experiments, he says, "have proved satisfactorily that a stiff clay or alluvial soils, when liberally supplied with a silicious material, will produce more abundantly *than the best sandy soils.*"

From their abundance of pine, the "shatters" of which they use for covering their potatoes, might they not appropriate some of it to be converted into charcoal, since from the heat of their climate vegetable matter subjected to moisture goes at once into putrefaction and does not form peat, as in the North?

But we forget that because we were *Polked* to the north of Mason and Dixon's line in search of bread, our pages and our advice have been repudiated by some of our Carolina friends.

We have been for months waiting for room to insert the PRIZE ESSAY to which the Royal Agricultural Society awarded its premium on "PEAT CHARCOAL AS A MANURE," and have had the necessary engravings prepared; but fear we shall be compelled to postpone it once more.

There is much on the subject in the great work of Doctor Kane, some of which is here submitted, and will be found highly interesting, as well for the owners of peat bogs and for farmers who are destined to find in them a great resource, as for general and more scientific readers.—*Ed. P., L., and A.*

By means of the following analytical results, the general practical qualities and the chemical composition of turf may be considered to be established. The specimens were selected from Cappoge in Kildare, and Kilbeggan in Westmeath, on different sides of the great Bog of Allen, and from Kilbaha in Clare, where an extensive district of bog exists.

When ignited, the turf gives off inflammable gas, much water, and leaves a light, easily combustible charcoal. I found the specimens analyzed to yield,

	LIGHT TURF.		DENSE TURF.	
	CAPPOGE.	KILBEGGAN.	KILBAHA.	CAPPOGE.
Volatile matter,.....	73.63	75.50	72 80	70.10
Pure charcoal,.....	23.82	22.67	19.14	23.66
Ashes,.....	2.55	1.83	8.06	6.24
	100.00	100.00	100.00	100 00

By ignition with litharge it was found that

One part of Cappoge turf gave 13.0 of lead.
" Kilbeggan " 14.2 "
" Kilbaha " 13.8 "

Hence 100 parts corresponded—

Of Cappoge turf, to 37 of pure carbon.
Kilbeggan " 41 " "
Kilbaha " 40 " "

I determined also the elementary composition of these turfs; the results were as follows:

	CAPPOGE.	KILBEGGAN.	KILBAHA.
Carbon,.....	51.05	61.04	51 13
Hydrogen, ...	6.85	6.67	6.33
Oxygen,.....	39.55	30.46	34.48
Ashes,.....	2.55	1.83	8.06
	100.00	100.00	100.00

Turf contains much less nitrogen than coal. Hence the liquor obtained in distilling turf contains no free ammonia. On the contrary it is acid from acetic acid, but even of this it yields so little that it cannot become, as occurs in the case of wood, an object of manufacture.

The calorific power of dry turf is about half that of coal. It yields, when ignited with litharge, about fourteen times its weight of lead. This power is, however, immensely diminished in ordinary use by the water which is allowed to remain in its texture, and of which the spongy character of its mass renders it very difficult to get rid. There is nothing in the industrial economy of this country which requires more alteration than the collection and preparation of our turf. Indeed I may say, that for practical purposes this valuable fuel is absolutely spoiled, as it is now prepared. It is cut in a wet season of the year; whilst drying, it is exposed to the weather; it hence is in reality not dried at all. It is very usual to find the turf of commerce containing one fourth of its weight of water, although it then feels dry to the hand; but let us examine how that affects its calorific power. One pound of pure, dry turf will evaporate six pounds of water; now in one pound of turf, as usually found, there are three quarters of a pound of dry turf, and one quarter of a pound of water. The three quarters of a pound can only evaporate four pounds and one half of water. But out of this it must first evaporate the quarter of a pound contained in its mass, and hence the water b iled away by one pound of such turf is reduced to four pounds and a quarter. The loss is here 30 per cent.; a proportion which makes all the difference between a good fuel and one almost unfit for use. When turf is dried in the air, under cover, it still retains one tenth of its weight of water, which reduces its calorific power 12 per cent.; one pound of such turf evaporating five and one third pounds of water. This effect is sufficient, however, for the great majority of objects. The further desiccation is too expensive and too troublesome to be used, except in some especial cases, of which the more important shall be hereafter noticed.

The characteristic fault of turf as a fuel is its want of density, which renders it difficult to concentrate within a limited space the quantity of heat necessary for many operations. The manner of heating of turf is, indeed, just the opposite to that of anthracite. The turf yields a vast body of volatile inflammable ingredients, which pass into the flues and chimney, and thus distribute the heat of combustion over a great space, whilst in no one point is the heat intense. Hence for all flaming fires turf is applicable; and in its application to boilers it is peculiarly useful, as there is no liability to that burning away of the metal, which may arise from the local intensity of the heat of coke or coal. If it be required, it is quite possible, however, to obtain a very intense heat with turf, as I shall notice when speaking of the manufacture of iron.

I have already noticed the area over which turf may become available for industry. It comprises the central limestone plain, extending also over Galway and Mayo, with parts of Clare and Kerry. The cost at which turf may be consumed in the immediate neighborhood of the bogs, I consider to be, from pretty numerous inquiries, not above 3*s*. 6*d*. per ton, but in our subsequent calculations I shall take 4*s*., in order that the error, if any, may be in excess of cost. I shall consider, however, that the turf is dried in the air under cover, which, if our industry ever becomes active, and our fuel economized, must be the ordinary practice. Its economic value may then be practically assumed as 44 per cent. of that of ordinary coal. The turf at 4*s*. per ton costs as much to give a certain heat as coal at 9*s*. 1*d*.

The removal of the porosity and elasticity of turf, so that it may assume the solidity of coal, has been the object of many experimenters, who have proposed mechanical and other processes for the purpose. Amongst these we may mention Lord Willoughby D'Eresby, whose anxiety to improve the condition of the industrial classes deserves the highest praise. Lately with us Mr. Charles Wye Williams

has brought into use various preparations of turf, and has given considerable impulse to the utilization of this kind of fuel. It has been found that the elasticity of the turf fibre presents great obstacles to compression; and the black turf which is not fibrous is of itself sufficiently dense. The only modes that present promise of successful issue, are those invented by Mr. Williams. One of these consists in drying the turf well, and then impregnating it with tar, which renders it waterproof, as it were, besides augmenting its calorific power. Turf so prepared has no tendency to re-absorb moisture, which is the serious failing of turf that has been perfectly dried, and the expense of thus bitumenizing the turf is, I understand, very trifling. It is said to be manufactured for from 6*s*. to 8*s*. per ton, and from the trials that have been made with it upon a very considerable scale, it appears to have a calorific power little inferior to coal.

All of those machines which have been invented for pressing turf, sod after sod, by manual labor, become ultimately too expensive to allow of their being profitably used. It is only by operating on a great scale, and with powerful machinery, in fact, only by manufacturing compressed peat largely for sale, that the operation can be made to succeed practically. This is what Mr. Charles W. Williams has so well effected at Cappoge. The turf, when fresh cut, has its fibre broken up as far as possible, and is then placed between cloths, and pressed by a hydraulic press of great power. The condensation is to about one third of the volume, and it loses about two fifths of its weight, by the water which is forced out in the pressing, and subsequently dried out. The sods of turf so prepared, even when formed of the very upper and spongiest stratum of the turf, are denser than wood. They have little or no tendency to grow damp, and it is found that including all labor, wear and tear, and original cost, this compressed peat can be delivered at the works for 5*s*. per ton. When this compressed peat is carbonized it gives a fine coherent coke, which contains very little ash, and amounts to about 30 per cent. of its weight, when the coking is properly carried on. The density of this coke is greater than that of wood charcoal, being found to range from 913 to 1040; the turf from which it was made having a specific gravity of from 910 to 1160. Its cost when manufactured does not exceed 20*s*. per ton.

The employment of turf as a source of heat in industry is extending: already it supplies exclusively the steamboats on the Shannon and a great number of distilleries and mills. From the numerical facts that have been given, the economy of its use may be inferred and compared with that of other fuel.

Not merely may we utilize turf in its natural condition, or compressed, or impregnated with pitchy matter, but we may carbonize it as we do wood, and prepare turf charcoal, the properties of which it is important to establish. The methods of carbonization are of two kinds: 1. By heating the turf in close vessels; by this mode loss is avoided, but it is expensive, and there is no compensation in the distilled liquors, which do not contain acetic acid in any quantity. The tar is often small in quantity, and the gases are deficient in illuminating power. Hence the charcoal is the only valuable product. Its quantity varies from 30 to 40 per cent. by weight of the dry turf. The products of the distillation of 1157 lbs. of turf were found by Blavier to be:

474 lbs.	charcoal, or	41.1	per cent.
226 "	watery liquor, or....	19.3	"
7 "	tar, or	.6	"
450 "	gaseous matter, or..	39.0	"
1157		100.0	

The quantity of tar is very variable; thus the turf used in the Iron furnaces at Voitoumra gives, when coked in close vessels:

Charcoal,.....	40.25
Tar,.....	24.50
Watery liquor,.....	14.00
Gaseous matter,.....	21.25
	100.00

The economical carbonization of turf is best carried on in heaps, in the same manner as that of wood. The sods must be regularly arranged, and laid as close

as possible; they are the better of being large, fifteen inches long by six broad and five deep. The heaps, built hemispherically, should be smaller in size than the heaps of wood usually are. In general 5,000 or 6,000 large sods may go to a heap, which will thus contain 1500 cubic feet. The mass must be allowed to heat more than is necessary for wood, and the process requires to be very carefully attended to, from the extreme combustibility of the charcoal. The quantity of charcoal obtained in this mode of carbonization is from 25 to 30 per cent. of the weight of the dry turf.

The charcoal so obtained is light and very inflammable. It possesses nearly the volume of the turf. It usually burns with a light flame, as the volatile matters are not totally expelled. This is shown by the composition of a specimen analyzed with the following result:

Carbon,.....	89.90
Hydrogen,.....	1.70
Oxygen and nitrogen,.....	4.20
Ashes,.....	4.20
	100.00

This charcoal is usually very light and friable. It is hence peculiarly fitted for the manufacture of gunpowder, and Mr. Derust, Pyrotechnist to Vauxhall, who experimented with it at the request of Mr. Williams, reported that it stood the several tests, and was 20 per cent. more combustible than wood charcoal.

For many industrial uses the charcoal so prepared is too light, as, generally speaking, it is only with fuels of considerable density that the most intense heat can be produced; but by coking compressed turf, it has been already shown, that the resulting charcoal may attain a density of 1040, which is far superior to that of wood charcoal, and even equal to that of the best coke from coal. The importance of this result in the metallurgic relations of this fuel I shall hereafter notice. As to calorific effect, turf charcoal is about the same as coal cokes and little inferior to wood charcoal, and it has been found to give from twenty-six to thirty parts of lead by its reducing action upon litharge. It is peculiarly important in the preparation of the charcoal from turf, that the material should be selected as free as possible from earthy impurities, for all such are concentrated in the coke, which may be thereby rendered of little comparative value. This is remarkably shown by observing the composition of the coke from the four varieties of turf, the analyses of which are given in page 556. Thus the cokes consisted in 100 parts of

	LIGHT TURF.		DENSE TURF.	
	CAPPOGE.	KILBEGGAN.	KILBAHA.	CAPPOGE.
Pure coke,.....	90.3	90.6	70.4	79.9
Ashes,.....	9.7	9.4	29.6	20.6
	100.00	100.00	100.00	100.00

Hence the coke from surface turf contains not 10 per cent. of ash, whilst that of the dense turf of the lower strata contains from 20 to 30 per cent. This latter quantity might altogether unfit it for practical purposes.

Such is the description of our sources of fuel, as far as I have been able to collect facts regarding them. I have been anxious to remove exaggerated ideas of opposite characters which have been entertained. Although destitute of the grand development of mineral fuel which has rendered the sister kingdom the centre of the industrial arts, we yet possess several coal districts of considerable extent, and yielding large supplies of fuel; and moreover, there is in our bogs amassed a quantity of turf, which, if the peculiar characters of that fuel be suitably attended to, may become of eminent importance to the country.

THE DOG TAX.—Who says American farmers pay no dog tax? Maryland forfeits every year at least $100,000, that she might realize from the extension of her flocks of sheep, and Pennsylvania at least double that amount, were it not for the certainty of their being destroyed by dogs. Thus the farmers of these two States may be said to pay a dog tax of $300,000.

THE GREAT BROBDIGNAG GLASS-HOUSE;

OR, JOHN BULL HUMBUGGING THE WORLD.

"It is proposed in a New-York paper that an Alderman there, who lately denounced the World's Fair in London as a second Congress of Vienna, got up to destroy the liberties of Europe, be sent to the Fair from that city as a specimen of *verd antique*."

GREEN or dry, the Alderman is not alone in his estimate. The following is extracted from an article in the January number of *Blackwood's Edinburgh Magazine*, in which is justly extolled the clearness and vigor of Mr. Carey's writings on political economy, in reference especially to his essays, "THE HARMONY OF INTERESTS, *Agricultural, Manufacturing, and Commercial*," as they appeared in this journal. The Editor of Blackwood says, as to the World's Fair, to which it is proposed to send the New-York Alderman as a specimen of *verd antique:* "It is with a feeling *nearly akin to loathing* that *we peruse* accounts of BROBDIGNAG GLASS-HOUSES, and sham exhibition of the Industry of Nations, reared at an enormous cost, when we know that the men who ought to be the producers of our national wealth—and who might be so, were they not made the victims of a heartless and senseless system—are being driven in hundreds from their hearths and homes, and cast upon the wide world without a roof to shelter them, or a rag to give them covering."

The real green ones we take to be those who will flock, with gaping mouth and eyes, from all parts of the world, to the *great show*, and who, in place of these thousands who are "driven from their hearths and homes, and cast upon the wide world without a roof to shelter them or a rag to give them covering"—instead of seeing these *fruits* of that system of monopoly that has beggared the people of India and of Ireland, and driven them to houseless misery and starvation, they will just have time to lift up their hands and eyes in wonderment at the fine *show*. The natural consequence will be, that the world of visitors will come away, leaving behind them some millions of dollars to the show-men, and overcome with astonishment to think how the world should ever dream of going any where, for any thing, except to the "great workshop of the world"!!

Where representatives are sent by Agricultural Societies, we propose for them instructions something like the following:—After looking at the Exhibition in London, and taking note of such things as indicate progress in the arts, you will be expected to travel *through the country—to note the condition of the agricultural laborer*—to see what proportion of what he produces falls to his lot for consumption. You will report particularly on the effect of a system which turns the people of a country from being active producers, to being mere shop-keepers, converters, and exchangers—middle-men to fetch and carry, supported out of the substance of the producer and the consumer, who would fain dispense with their services, if John Bull would allow them to come together.

You are not to have your eyes dazzled, and come back to us with flaming reports about the number of pans in John's dairy, and the thickness of the cream. We want you to take time and go look into the barn-yard and over the farm, and see whether, to produce all this cream,

the men and the horses have not been half starved; in a word, we want you to report truly, whether he has not paid too dearly for his whistle; and if you are going without the time and the resolution to do that, and thoroughly, then we prefer that you should go in your own name, if you will, but *not in ours.*

We shall expect to hear from you, finally, whether it be or be not true, as was said by Governor Pownall in 1769, when arguing in the House of Commons against taxing the Americans, "*They have within themselves every thing requisite to the food, raiment, or dwelling of mankind; they have no need of your commerce.*"

Instead of having these things looked into and reported upon, we shall doubtless have our ears and our papers filled, for months and years to come, with the wonderful sights that were exhibited in the great Brobdignag Glass-House. We shall have our eyes dazzled with the gilded leaves wrought by the great monopolists; but who will lift them to expose the serpents they conceal? Serpents with whose poison the very air is filled, driving thousands from their hearths and homes to perish by cold, famine and pestilence, and all in subserviency to "the policy of British merchants;" and to enable one Lord Mayor to regale his Highness Prince Albert, the reputed Father of the Show, and brother Lords Mayors, with *single dishes costing* $500!!!

So much for the Brobdignag Glass-House, gotten up, like certain raree shows in other countries, to amuse and humbug the public.

RAILROADS IN GEORGIA—WHAT THEY ARE DOING FOR HER.

We frequently notice in distant papers very gross and inaccurate statements in regard to the different railroad improvements in Georgia. Roads are mentioned as being in progress of construction which are already completed, while others are advertised as completed which never had an existence, save in the visionary brains of certain gentlemen about Albany and Charleston. We therefore give the following recapitulation:—

1. Central Road, from Savannah to Macon, completed,	191 miles.
2. Georgia Road, from Augusta to Atlanta, completed,	171 "
3. Macon and Western Road, from Macon to Atlanta, completed,	101 "
4. Western and Atlantic Road, from Atlanta to Chattanooga, completed,	140 "
5. Southwestern Road, from Macon to Oglethorpe, nearly completed,	51 "
6. Muscogee Road, from Columbus to Fort Valley, on Southwestern, in progress,	71 "
7. Atlanta and West Point Road, from Atlanta to West Point, in progress,	85 "
8. Milledgeville Road, from Gordon to Milledgeville, in progress,	18 "
9. Eatonton Road, from Milledgeville to Eatonton, in progress,	22 "
10. Wilkes Road, from Double Wells to Washington, in progress,	18 "
11. Athens Branch, from Union Point to Athens, complete,	39 "
12. Burke Road, from Eighty-mile Station, on Central Road, to Augusta, in progress,	56 "
Total completed and in progress,	963 miles.

From this it appears that Georgia has in operation the Central, Georgia, Macon and Western, and Western and Atlantic roads, and the Athens Branch, making an entire distance of 642 miles. The Southwestern (51 miles) will be in operation in 90 days. The Atlanta and West Point road, 30 miles; the Muscogee road, 25 miles; the Burke road, 23 miles; and the Milledgeville road, 18 miles, making a total of 147 miles, will be put in operation the ensuing summer. This will make

the whole extent of railroad in operation in Georgia by 1852, 789 miles, leaving 174 miles to be completed. This will no doubt be accomplished in two years, when the system of internal improvements in the State will be almost complete.

The roads already in operation are all prosperous, and are realizing from eight to sixteen per cent. clear profits per annum. Thus is demonstrated the wisdom and importance of a proper system of improvements. Georgia, after expending nearly fourteen millions of dollars, is now *twice as rich* as when she commenced her noble enterprises.—*Macon Messenger.*

What is it, but practising on the doctrine we preach, that has enabled Georgia to shoot ahead of all the Southern States? What is the effect of her railroads but that of bringing the Loom and the Anvil nearer to the side of the Plough, diminishing the friction and expense of the machinery employed in the work of exchange between producer and consumer? The quicker and the cheaper their intercourse with each other, the greater the command which each gains over himself and his time and faculties; and the more time he has left for the work of production—whether it be for production by the machines of agriculture, or other machinery. Just in proportion as she learns to develop her own resources and to work up her own materials, so will she *advance in population, power, wealth*—in the application of science, and the improvement of the arts of agriculture, and all other useful industries; and yet there are many good men in Georgia who refuse to patronize this work, because we advocate the very policy by which she is advancing in all that contributes to the power and true glory of free States! But, notwithstanding the accidental adverse results of attempts to improve our legislation for encouragement of American industry, who can fail to see the progress of public sentiment in that direction since the question was asked by us a few years ago: '*Shall our cotton be sent abroad to foreign looms, or the Looms be forced to come to the Cotton?*"

Every one conversant with the course of public men in granting acts for internal improvement, must have perceived with what a slow, condescending, patronizing air, these gentlemen, clothed with a little brief authority, grant to the people the right to construct them—as if they were doing a gratuitous favor and giving away the public money; whereas such works are generally found, as here in Georgia, to be the best of all public investments—not only by actual returns in tolls, but, what is of ten times more importance to the State, by development of great sources of wealth, hitherto locked up, and bringing millions of property, otherwise valueless, into a condition to lighten the public burdens, by contributing to the public treasury.

"It is not enough," says a learned and eloquent author, "that a country may possess, in the fertility of its soil, or the richness of its mines, the materials for the creation of industrial wealth, but also there *must be the means of bringing these resources into play by land and water communication.* By their aid the different substances necessary to manufactures are brought to the localities where the processes to which they are to be subjected can be carried on with most advantage, and the produce be conveyed to the situations where its sale may be effected with most profit to the owners. Direct and safe modes of communication are, therefore, indispensable to the development of industrial pursuits, as well for the procuring access to raw materials, as to secure markets for the manufactured goods.

"The internal communications of a country demand attention, however, on grounds of far higher order than their merely facilitating mercantile

transactions; they are connected with the *highest moral aims* of the legislator, by their influence on the habits and the conduct of the people. The isolation in which man is condemned to live, in a district destitute of roads, or where transport is difficult and expensive, is fatal to his progress in civilization and humanity. He grows up in ignorance of his fellow-men; his mind, limited to the circle of a few ideas elsewhere obsolete, looks upon all deviation from them as fraught with injury and ruin. The results of new methods in the management of land or labor, which within a few miles are actually producing the greatest benefits, remain utterly unknown to him. The stimulus of contact with persons above him, and yet not too far removed from his own sphere to prevent the ambition arising within him of exerting himself to attain the comfort and consideration which they enjoy, does not present itself to his mind. His isolation and his ignorance remove him equally from the instructor, and the instructor from him, and he resists with violence, by which, in the absence of reasoning, he can alone show his will, the intrusion of all novelties calculated to break through the miserable monotony in which his forefathers and himself have vegetated. An enlightened French minister, in speaking of the cost of the manufacture of iron in France, as affecting railroads, said: 'The question of the price of iron,—it is the question of roads, the question of communications, of intercourse between man and man, of the obliteration of prejudices, of the production of mutual amity, of morality, and civilization.'"

Curious, and even more useful than curious, would be an accurate calculation which should show how much is gained, or in other words, how much added, to the time and the productive capacity of the people of Georgia, who travel now-a-days, over one thousand miles of railroad, in comparison with the old system of travelling over the same distance? Not only how much is gained of time to the traveller, but the gain accomplished by the *quicker realization of the products of labor*, to be again employed, as capital, in some form, in the work of production! It is by this means, and by her other more effective and powerful *machinery*, that Massachusetts has been shooting ahead of her sister States, who continue to work by hand power and to jog along over the old country roads, "bogging down," as they occasionally do in some of the States, even in mid-summer. It is chiefly by the extension of steam power, for intercourse and for productive industry, that Maryland has begun within the last ten years to go ahead. Virginia, too, which ought to outstrip them all, when her natural advantages are considered, is beginning to open her eyes to the undeniable fact, that the State which does not wish to be left far behind, *must learn to use the best machinery*, whether it be in the act of travelling, or in the work of production in every path of industry.

If, since Jefferson said to Austin in 1816, "We must now place the manufacturer by the side of the agriculturist," her statesmen had given themselves as ardently to the study of *practical productive industry*, as they have done to *political abstractions*, she would now be the leader of all the States, as she is the mother of so many,—the admiration of every one capable of appreciating that wisdom which enables men to turn to the utmost account those vast resources which God in his providence gave, not to be a stigma—a reproach—but to be skilfully and gratefully used. How long will she continue to send to mother England for cloth and iron, representing the agricultural products of degraded and starving labor?

To us, much more strongly even than to Ireland, might be applied the

following remarks by the learned author on the "INDUSTRIAL RESOURCES" of that ill-fated country;—more strongly to us, because we do possess, even in profusion, which Ireland does not, England's great elements of manufacturing power—*Coal* and *Iron*:—

Dazzled by the wondrous facilities for industrial activity which the structure of the sister kingdom presents, we had gradually sunk under a stupefying impression, that Ireland was not suited for any manufactures; and the phrase currently ran: "We are an agricultural population, the English a manufacturing people; our soil and climate fit us for producing corn and cattle, whilst her mines of coal and iron, the sources of her machine power, make her the workshop of the world. The position of the two countries is, therefore, correlative, and mutually advantageous: she sends us clothing, and we send her food; from her crowded factories we receive all the products of complex manufacture, and in return she takes our corn and cattle, the raw productions of our soil."

Well would it be if all legislators would profit by the further remarks of the same writer, as true as they are profound:—

The distinction which is drawn between an agricultural and a manufacturing population, is, indeed, much more one of social condition and of civilization, than of geographical character. Man, in his first escape from barbarism, attaches himself to the soil, becomes a shepherd, and next a farmer: as his wants become more numerous, his agricultural operations become more complex, his ingenuity increases, and the assistance he derives from the machines for abridging labor is more important. From watching cattle he passes to manufacturing food; the earth becomes a portion of his machinery; he cleans, prepares, and sets it into action, restores the worn-out portions, adds such as are deficient under the form of manures, and in all the general characters of his operations resembles a manufacturing chemist, except that his product is a palatable food instead of soap or oil of vitriol. So far from there being aught antagonistic between agriculture and manufacture, the former can only be carried on, with its best effect, where the industrial arts are in a flourishing condition. The farmer requires for his clothing the produce of various manufactures, and for his protection a house made comfortable by the labors of various artisans. His plough, his machines for winnowing and threshing, have been invented for him by ingenious mechanists. On the other hand, the manufacturer must be fed. The produce of the farm finds its quickest and readiest sale in the neighboring manufacturing town. The risk and cost of transport to a distance, of sales to strangers, of change of markets, are all avoided where domestic industry provides for the farmer purchasers in his own country. Moreover, besides food, the manufacturer takes from the agriculturist various materials, as flax and hemp, wool and hides, and cotton, which form a large part of the value of his farm produce, and yet derive their greatest value from the subsequent processes of manufacture to which they are submitted.

The two great branches of human occupation, manufacturing and agricultural, so far from being opposed or inconsistent, are thus really bound together by the strongest ties. The same principles of science regulate the operations of both, and afford similar means of amelioration. The products of both are equally necessary for the subsistence of a civilized people, and each depends for the disposal of his stock on *the capability of the other to purchase and to pay for it. No population that is exclusively devoted to the one or to the other mode of existence, can have a healthy organization, or be considered as in a natural state.* It is, therefore, important to seek for the means of advancing both together.

The reader will, we hope, consider that though the preceding has been suggested by a passage found in the *National Intelligencer* in reference to Georgia railroads, the observations are of general application, and so intended, as connected with the interests of the Plough, the Loom, and the Anvil generally, and as illustrative of the objects of *this* journal in particular; it being our design to show that, though it be well in practice to know how and when to plant an onion or a yam, it is, in the present condition of American Agriculture, much more important to begin with providing a *good market* for the products of the Plough. *That done*, the farmer will not fail to learn how to increase them.

NEW PROCESS FOR PREPARING FLAX.

Our readers have probably seen statements going to show that a new process has been discovered lately in England for preparing flax to be spun and wove as cotton is, without any steeping, in warm or in cold water. We have kept our eyes on the matter, without having had room to treat of it. Nor have we now. It is generally known, that a very enlightened and patriotic Society has existed for some years past in Ireland, for improving the growth and management of flax. Notwithstanding all that has been said in favor of the new discovery, they adhere to the impression that the best process is that by Schenck's patent, to wit: by hot water. In one of their late publications they say:—

The system of steeping flax in hot water, brought under the notice of this Society by the late Mr. Schenck, in 1847, has, from the first, had the earnest attention of your Committee. While approving the general principle, they have been cautious in pronouncing a decided opinion upon its details, in consequence of some objections having been made by parties in the north of Ireland. In order fully to investigate the grounds for these objections, they gave the matter in charge to a sub-Committee, whose report, in which your Committee very fully concur, will be laid before the Society at the present meeting; and they feel confident that it will sufficiently justify you in giving every encouragement, in all parts of Ireland, to the carrying out of the patent system. In the course of these investigations, your Committee, being made acquainted from time to time with the results of the various experiments which had been conducted with a view to testing the merits of the plan, considered it advisable to give publicity to them; and, in consequence of their favorable nature, many parties have been induced to establish steeping concerns in different localities. The adoption of the system has been much facilitated by your Committee having induced the late patentee to lower his terms for the right of working. Your Committee have given their best attention to all new projects brought forward for preparing flax fibre for sale, as the Society must be naturally solicitous to render every improvement auxiliary to the advantage of the grower, and to the perfecting of the products of his crop. They have, therefore, carefully investigated each new plan that has been submitted, and, for so far, they believe that nothing appears to combine so many advantages as Schenck's system. Within the last few months a plan of separating the flax fibre without steeping has been brought forward in London, by Mr. Donlan, which has attracted great public attention. Your Committee are of opinion, however, that the greatest caution should be exercised in the consideration of these statements, from the absence of data supported by the opinion of practical persons, competent to form a judgment on the merits of the proposed process, and from the fact that the dry preparation of flax fibre has been frequently brought forward at former periods and in different countries, but has, in all cases, been given up, owing to its inutility. Although it would be unjust to the inventor for the Society to pronounce decidedly against his plan, without full information on all its details, yet your Committee think, from the partial evidence which they have been able to collect, that there is no ground for supposing this process to be so advantageous, either to the producer or to the consumer, as Schenck's system; and they hope, therefore, that parties who have intended to adopt the latter may not be deterred by the plausible but unsubstantiated statements relative to the former which have appeared in the public journals.

Division of Labor in Flax Management.—It was early recognized by your Committee that great advantage would be derived from the culture of the flax-plant, and the preparation of the fibre for sale, being separated into two distinct departments, requiring the farmer simply to prepare the soil, sow the seed, and pull and dry the mature flax-stems; and leaving to other parties the steeping, drying, and scutching operations. Being aware that in Belgium a large proportion of the flax crop is purchased by factors from the growers, who steep it in the river Lys, and bring the fibre to market, your Committee, in 1843, encouraged some enterprising and experienced individuals to undertake a similar system in Ireland, and the Society awarded them gold medals in testimony of its approval. But, although the advantage was apparent, of superior quality and handling in the flax thus treated, from a variety

of causes it was not found to be profitable to the undertakers; and there is reason to believe that the system cannot be made practically available in Ireland. Schenck's hot-water method appears, however, to combine equal advantages in the quality of the product, with a fair profit to those who may embark in it as a business undertaking. While it is probable that those farmers who are particularly skilful in the management of their crop may produce as good an article by the ordinary mode, the proportion of such is so small to the great mass of flax growers, that there can be no reasonable doubt the average quality of flax brought to market from any district would be greatly improved by the adoption of the new system. In the value of the seed, which would be all saved by the new process, a yearly addition of fully a quarter of a million sterling would be made to the produce of the Irish flax crop; a fact of itself sufficient to warrant its general adoption. But the most important advantage of this method, as relating to the general extension of flax culture in Ireland, is the immediate market thus afforded to the grower, who is frequently deterred from an extension of his flax crop by the risk and uncertainty attending the ordinary process of steeping in the open air, as well as by the difficulty of managing a large quantity, all of which has to be steeped at the same time; while, in many districts, the absence of facilities for watering precludes farmers from attempting its culture. In the introduction of the crop where it has not hitherto been grown, the establishment of a steeping concern and scutch-mill at once removes all the difficulties arising from the critical nature of the ordinary processes, and the want of a market on the spot for the fibre. With proper instructions in the choice of soils, their preparation, the selection of seed, and the sowing, pulling, and saving of the plant, the farmer will be enabled to produce a good article of flax-straw, while the capital, skill, and undivided attention of the steeper will insure that the fibre is produced in the market in a satisfactory state. Your Committee therefore consider that a much more rapid development of flax cultivation will take place all over the country, by the carrying out of Schenck's system, than if the growers were obliged to depend on the old method of manipulation.

Saving of Flax-seed.—The value of the seed of the Irish flax crop, during the ten years of the Society's labors, cannot be estimated at less than £2,000,000. Of this large amount probably not more than one tenth has been rendered available, the rest having all been steeped with the flax, and thus utterly lost. Your Committee have been untiring in their exertions to impress upon the farmers the lamentable waste arising from this practice; but even yet with only partial success. The reasons which have been instrumental in causing farmers to neglect this advice are various. Many could not be made to believe that the quality of the fibre is not injured by taking off the seed, and this opinion has been strengthened by the operation of rippling being often carelessly performed, with inefficient tools, so as to tear and break the ends of the flax. It was also found difficult, in many cases, to carry on the rippling and steeping of a quantity at the same time. But the chief obstacle arose from the unfavorable weather, which frequently sets in in our climate at the pulling season, rendering it very difficult to dry the seed properly in the open air, and obliging the growers to kiln-dry it, which, when hurriedly done, causes the seed to shrivel, and leaves it of little comparative value. It has only, therefore, been in certain districts that the saving of flax-seed has become at all general, while in others it has not been practised at all. It is with no little satisfaction, therefore, that your Committee have to call your attention to the fact that the drying of the flax-stems for Schenck's patent process necessitates the preserving of the seed, and insures its being saved of the best possible quality. Flax-seed thus saved can be employed in two ways, either for sowing again or for cattle-feeding. There is an annual import from foreign countries into the United Kingdom of about 650,000 quarters of seed, and 70,000 tons of oil-cake made from it; value together about £1,950,000, all of which could readily be supplanted by the home-grown article, while the valuable manure which it produces would return to the soil the greater part of the substances taken from it by the plant. To meet the annual demand for sowing about 28,000 quarters of seed would be required, at an average value of £112,000. Nor would the money value be the only advantage of producing this at home. It often happens, as in the case of the present year, that enough of foreign seed cannot be procured to meet the demand; and while its price is so much enhanced as to place its purchase beyond the means of the poorer class of farmers, much land that had been intended for flax is put in other crops, after the import of seed has been exhausted. It is very gratifying to find that more than 6,000 bushels of seed from the steeping concerns were sold last spring to farmers, and that the produce, as in all instances where good home-saved seed is used, was abundant, and

generally excelled the crops from foreign seed. Your Committee calculate that nearly 40,000 bushels of Irish seed will be available for next sowing season, from this and other sources. They look confidently forward to a period not far distant, when the import of foreign seed will be restricted to the quantity necessary to maintain the vigor of the plant, as it has been found that if the same strain of seed be used for successive years, it degenerates in quality; but this might be obviated by changing the seed to different soils, as is done in the case of other plants.

AGRICULTURAL EDUCATION IN MASSACHUSETTS.

SOMETHING WORTHY OF NOTE IN THE CULTIVATION OF POTATOES.

We heartily unite in the hope expressed in the *Boston Journal*, that the Report alluded to in it will be speedily published; but futile will be all attempts at the general improvement of the agriculture of any country, until those who carry it on are *more appropriately* educated to understand the principles of the art, and of the machinery employed in it.

Massachusetts, by placing the Manufacturer by the side of the Agriculturist, *combining* the powers of the Loom, the Anvil, and the Plough, has prepared herself to adopt and insure such a system of *appropriate* education for Agriculture, in advance of any other State in the Union.

The Commissioners appointed by the Governor and Council, under the authority of an act passed by the last Legislature, have already made their report, and we are informed from the best authority, that it is every way worthy of the talented gentlemen employed in it, and that when published it will be an honor to the State. The general report is from the pen of the Hon. M. P. Wilder, and it is accompanied by a separate paper, drawn up by Prof. Hitchcock. This gentleman, we understand, visited *more than one hundred, and has given full statistics of about three hundred and fifty of the agricultural schools of Europe*, embracing a mass of useful information upon the subject unequalled by any thing existing in such a form, even in the old world. We trust that this report will be printed without delay, and that the recommendations of the Commissioners will be adopted and fully carried out.

We observe in the same number of the *Journal*, a discussion at one of the meetings in the Legislative Hall, as to the interminable subject of the *Potato rot*, which, as usual, amounted to little or nothing.

The ideas of importing the potato from its native country and of getting new varieties from seed, have been carried out in England, but without success.

We have lately imported an essay on the cultivation of the potato, written for the great premium offered in Europe, and shall give it as soon as we can get room for it. It was written by Mr. Cuthill, an eminent Horticulturist of Camberwell, near London.

Cottage Farm, Feb. 1, 1851.

Mr. Editor:—In May, 1848, you took the liberty to *read* before "certain gentlemen" in New-York, and afterwards *publish* in the *Farmer's Library*, an extract from a communication then made to you, detailing an experiment made in the *cultivation* of the potato and its probable influence upon the *rot*. Having cultivated a lot in the same manner pretty much last summer, and regarding it as entirely conclusive as to the *method of cultivation*, if not of *avoiding the rot*. I take the liberty to report it briefly, to be disposed of as you may deem proper.

The land was prepared as usual, laid out into rows two feet apart, manure put in the rows, the potatoes dropped on the manure and covered with the common hoe; machined wheat straw was then applied and carefully spread over the whole

surface, to the depth of 6 or 8 inches. The potatoes came up through the straw promptly, grew very well and without interruption throughout; the ground always appearing moist under the straw, notwithstanding drouth during part of the time of their growth. The varieties planted were the Mercer, Pink Eye and Blue. No vegetation appeared upon the surface of the straw but the potato tops. Product at the rate of upwards of 300 bushels to the acre, with no indication of the rot, although prevailing in the neighborhood. This season I shall manure the ground broadcast and plough it under, harrow and then plough them in with the shovel, plough to the depth of 3 to 4 inches, beginning on one of the sides of the field, drop in the furrows, and so dispose the rows as not to be more than 18 inches apart, strewing plaster, ashes, guano or agricultural salts of some kind, in each row, and then apply the straw fully of the depth above mentioned, that being necessary to prevent the growth of weeds. The crop ought to be planted early, so that after covering it may have the advantage of being well saturated by the spring rains, after which further rains will not from my experience be indispensable to the growth and full *maturity* of the crop; a matter of no small moment, when the extent to which they are used as an article of diet is taken into view. After the potatoes are harvested, the straw can be again spread and full advantage had of Dr. Baldwin's theory.

J. S. Skinner, Esq. Respectfully yours, D. W. Naill.

To an application from the French Consul on the part of his government, we have referred to this repeated experience of Mr. Naill, as the most reliable practical fact that has fallen under our notice. The case referred to in the commencement of the preceding was related in the *Farmer's Journal*, vol. iii. page 579. It was thus:—

Senator Naill supplied a neighbor with potatoes for planting, who carefully planted the sets from 3 to 4 inches deep in drills about 18 inches apart, *covering* the drills carefully with straw, from 3 to 4 inches deep, except a small portion that was left uncovered, by way of experiment. The covering of straw *shaded the ground*, as recommended by Dr. Baldwin, prevented the growth of weeds, and superseded cultivation. The result was an excellent crop of sound potatoes so far as the drills were thus covered with straw. Those *left uncovered, suffered with the rot.* Surely this experiment is easily tried—*but*—let those who try it, report the result to the Edit. P., L. & A.

SEA-KALE.

There is much room for wonder when we reflect on the slowness with which new plants are introduced, and improvements adopted in Agriculture and Horticulture. We remember when the tomato, of which many thousand bushels are now greedily consumed, was cultivated in the garden of the Editor's father, as an ornament only to be looked at and admired, called the *love-apple.*

The first mention of *sea-kale*, that we recollect, was a strong recommendation of it in the *American Farmer*, some thirty years ago, by that accomplished horticulturist, Gen. T. M. Forman, of Maryland, who was then its only cultivator and friend in that State. There is no good reason why it should not be in very much more common use, as a delicate and delicious vegetable.

We find the following in a small pamphlet which we lately received from London, and which contains much about the cultivation of the *Potato, Strawberry, Rhubarb, Asparagus, Vegetable-Marrow, Melon, Cucumber, Love-Apple*, and other things, for which we only wish we had room now, since it will soon be too late for this season to avail of the information. The instruction in this pamphlet comes from one of the most celebrated and successful horticulturists in the neighborhood of London, Mr. James Cuthill.

Of the great difficulty of introducing the most invaluable vegetables into common use, it would be sufficient to refer to the gumbo, or *ochra;* a few pods of which, sliced and well stewed with a small piece of the flank of beef or knuckle of veal, is enough of itself to make a dinner for half a dozen better people than some Kings or Lord Mayors.

Sea-kale is another most wholesome and delicious vegetable; but owing to the expensive ground in which it is grown as well as the costly management, the middle and lower classes seldom or never taste it. I shall not describe the present way of managing it, for that is well known; but I shall proceed at once to detail a plan that will supply the London markets at a time when other vegetables are scarce. When we reflect that this is also a native of our sea-coasts, it is very hard that we should have to pay a shilling for a moderate dish of it, and that too in the month of April. This vegetable, the very reverse of asparagus, unblanched, is wholly uneatable. I would propose that acres of it be planted near the various lines of railway, choosing for them a rich, deep, loamy soil, sloping to the south. The ground ought to be well drained, which at all times makes 4° or 5° difference in its temperature, and then trenched at least two spades deep, previously putting on a good dressing of dung. Salt could be put on (two tons to the acre would not be too much) every February. Supposing the ground to be ready for plants by February, and a large stock of roots that had been sown in the previous spring at hand, take up the roots and cut off the head or eye; then cut up all the roots into lengths of three or four inches, taking care to know which are the top ends; for if this is not attended to, and the lowest part is planted upwards, the eyes, when they grow, would have to take an opposite direction and would not make so fine plants. The reason why market gardeners get so fine kale is owing chiefly to their not allowing more than two buds to grow on a plant at thinning-out time in spring; gardeners in general leave five or six. Market gardeners all force sea-kale. The roots after cutting the kale are carefully kept till spring; they are then cut into pieces and planted out into rows to grow into good plants for the next winter's forcing. Upon my plan the rows should be three feet apart, and one foot, plant from plant, in the row. The reason why three feet is allowed between the rows is to give fair space for the kale to grow in, as well as for an intermediate crop, which I expect will pay for the expense of the sea-kale. A single row of kohl-rabi, mangel-wurzel, swede-turnips, or cow-cabbage, would not shade the kale too much, and in the autumn when the temporary crop is removed and the kale-leaves getting yellow, the leaves might then be taken off the crown to the centre between the rows, there to be dug in along with the manure. This would enrich the centre for the next year's intermediate crop.

The process of blanching and the means of accomplishing it form our next consideration. The cheapest and most efficient plan is with pots: not those half-crown pots, with a lid made to fit them and other costly apparatus; but another kind of pot which I propose to have made for the purpose with no holes in it at all; rather rounded at top, a foot high, and a foot in diameter. They could be made for about six or eight pounds a thousand. Pots thus made would be much cheaper than covering the crowns over with mould in the centre. In the first place, land for sea-kale must not be too light unless it is very deep, and if heavy it would be wholly unfit to blanch the heads in; besides, all kale must then be washed, which would spoil it. Sea-kale ought never to be wetted until cooking time. Its roots are often much destroyed by wire-worms, but a good salting and application of soot would stop them from breeding, and in time would eradicate them. The length of time the old roots ought to occupy the ground ought also to be entirely altered. Gentlemen's gardeners, in general, look upon a piece of sea-kale, when once made, to last for ever. Not so the market gardener; he is always first in every thing, because he has to make the best of every thing. Who has not seen in private gardens plants growing in summer, some two feet apart, some four, and some rows entirely gone, all in the most irregular manner? The process of lifting the roots for forcing would soon alter this, and by following the above methods, large supplies of this most delicious and much neglected vegetable would be obtained; and all classes, and at a time when other vegetables are scarce, would be enabled to eat it. Sea-kale being hardy would be forced a little by the sun acting upon the earth; the pots would retain the heat and bring it on much faster than if it were covered with mould, and I am quite certain that the crops would pay much better than grain or root crops; but it must be borne in mind, that for late crops of kale or asparagus either, ground sloping to the north would make it ten days later, and as for the old plan of putting on large quantities of leaves mixed with dung, it ought at once to be given up, being not only unsightly

but expensive and inefficient, boiling the plants in the centre, while the outside row was quite cold. Propagate roots every year; take them up when wanted, and put as many as you want into a frame with a very little bottom heat. Pots could be used for it, either in a small or large way, by putting two or three roots into a pot: a plan I have followed in the blanching of chicory. I would simply take up the roots, plant them in the pots, and reverse the next smaller size over the crowns, stopping up the holes with a piece of clay, watering the roots, and then placing the whole in a moderate heat. By this means a much better succession of sea-kale could be kept up than by employing cart-loads of unsightly fermenting manure. As the kale is cut, lay the roots into a damp mould until March, when they can be cut into sets and again planted out for another crop for next winter. When the sets begin to grow round the edge of the top, let them be thinned out to two eyes. Five years is the utmost length of time a permanent plantation ought to be allowed to stand. One or two good soakings of manure water, or sewerage water better still, just after the crop was cut, would make the heads as big again for another year.

ASPARAGUS.

This king of vegetables is in great demand among the higher classes and more opulent tradesmen; but the poorer tradesmen and working classes can only "look and admire" it in the shops. Although a native of Britain, many do not even know the taste of it, owing to the expensive way in which it is produced, and the expensive nature of the land in which it is grown round London. Now there is no good reason that I know of why it should not be obtained at a less cost and sold at a less price. Why should not some spirited gardening farmers establish a few fifty-acre fields for its growth? An eligible site for them could be easily found along the lines of railway, choosing a deep, sandy, loamy soil, but not tenacious clay, for the purpose. A soil of this description would be rich in itself, and would not require so much manure as very light sandy soil would do, and in which it is now generally grown. The light soil gets lighter every year, on account of the manure put into it; but good loamy soil would produce asparagus to pay at less than half the price it is now sold for in the London market, and every class would then be able to partake of it the same as any other vegetable.

To establish a field of asparagus, spade labor must be resorted to, clearing out most carefully *couch*, *bindweed*, &c., and using the strongest and best manures, as night-soil, cow-dung, salt, stable and other manures. Sewerage water would suit perfectly, if it could be had and applied in the growing season, and when the plants are in bearing. It might also be applied after the crop is cut, for that is just the time when the roots are most in want of a stimulant to form a mass of fine buds for the next year's cutting. The field ought to be well drained, all drained land being warmer, earlier, and much more productive than undrained; and otherwise well prepared in autumn, before the heavy rains of winter set in. It should be trenched three spits deep if possible, the last spit forming a ridge, which would be well pulverized by the frost. In March those ridges should be levelled down, and the ground laid out for planting.

As it is my intention to discountenance the production of long, white, drum-stick asparagus as much as I can,* I beg leave to advocate the following plan, by which in time every row will form its own bed. I propose that each row be planted three feet distant from the other, and that each plant stand one foot apart in the row. This will give ample room for cleaning the crop, and for drawing up earth over the crowns, so as to form a ridge three or four inches deep, to be lowered again for the purpose of enriching the soil in the autumn and winter. By this method I consider that asparagus might be cut at least ten days earlier than it is by the plan now practised of burying the roots deep in a bed of earth, where sun and air cannot act upon them; and as for flavor, it has long been proved that although gentlemen's gardeners do not grow asparagus so large as the market gardener, of the two *it is by far the finest in flavor, with at least three times more eatable matter in each head, though only two thirds the length.* I have had asparagus sent to me from Brussels, all blanched together a beautiful creamy white, but when cooked, I could not discover the taste of asparagus in it. It was watery and insipid, *as highly blanched asparagus must always be*, having only the watery flavor of the roots. I have proved

* We wish you and all your co-operators success in that.—*Ed. P., L., and A.*

this years ago, by keeping it in frames shut up, and the glass covered over with mats to exclude light.

I imagine that I have said enough to explode the old-fashioned and expensive plan of growing this much-esteemed British vegetable. Some imagine that unless the roots are covered during winter, the frost will kill them. If roots are moved during winter, the wet will rot the injured fibres, and no gardener who understands any thing of vegetable physiology would think of lifting the roots for planting until February or March, unless for forcing, and the latter are put into heat at once; but asparagus is perfectly hardy. The plan of putting large quantities of manure on it during winter is nevertheless good; for the winter rains wash the strength of the manure down among the roots. I should give the ground a good salting annually in February; and when cutting is discontinued in June, I would *soak* with manure water, or town sewerage water better still, or even spread on dry artificial manure, for the heavy rains will soon wash the strength of it among the roots, and just at the time when the latter were making fresh crowns for next year's crop. This is no doubt the proper time to manure asparagus. If the above method of cultivation is adopted, I doubt not that its benefits will soon be discovered, not only in the shape of improved "grass," but also by the consumer. I believe that it is impossible for the grower to alter his mode of culture without the assistance of the consumer, and I am sure that by the plan I have just been advocating, the drain on the roots will not be half so much as it now is, owing to the fact of the latter having to form such a quantity of underground sticks ultimately to be thrown away. Wherever it is practicable asparagus ground should slope to the south or south-east, and the rows should always run south and north. Where the land is light, ploughs might be used in throwing up the ridge on each side of the row, and then it could be forked over. The chief labor and expense will be in cutting and sending it to market, which will form employment for the people in the neighborhood. In order to prove what the exclusion of air has to do not only with the flavor, but the hard or woody texture of the stem, (under protracted growth,) I had several heads of asparagus, just out of ground, covered over with long cucumber glasses, and all air excluded. When the stems reached the top they were cut and boiled; but they were so hard that not even the top could be used, proving at once that without plenty of air the stem gets tough and useless. The present plan of making asparagus beds round London, consists in putting on an immense quantity of manure and trenching the ground three or four feet deep, mixing the manure as the work proceeds. In March the ground is measured out after the following manner: Suppose that a fence runs south and north or otherwise, three feet is allowed between it and the first row; a drill is drawn about two inches deep, the seed sown thinly, say six inches or a foot apart,—that gives choice of drawing out the weakest in order that the permanent crop may stand one foot apart. The next row is sown eighteen inches from the one just mentioned; then for the alley and two sides of the bed five feet are allowed; then another row of seeds, and so on. That gives two rows to each bed. The first year, onions are generally sown all over the ground; the second year, lettuce or any dwarf-growing vegetable that will not choke the asparagus; and so on, until the third year, when the beds are formed out, and a few inches of mould dug out of the alley and put on the crown; but only a few of the finest heads are cut this year. Autumn arrives, and when the halm is cut the whole of the ground is forked over and planted with cabbage, coleworts, or winter-greens; then in spring the beds are largely supplied with mould out of the alleys, covering the crowns from eight to ten inches deep. The finishing of the cutting must be left to the grower. A fair crop of heads must be left after four or five weeks' cutting, in order in some measure to strengthen the young buds for the next year's crop, and to restore to the roots what has been taken from them in the shape of a crop; but not one head must be allowed to grow until you leave off cutting entirely at the end of the fourth year. When the halm gets ripe it is all cut down, and the mould thrown into the alleys and there enriched, and the whole of the beds and alleys are planted again with cauliflowers, &c. Such is the treatment which the London market gardeners give asparagus; but the plan which I have practised for these twenty years is as follows: As soon as the dead halm is cut down in autumn, I give the beds a good dressing of rich manure for the winter, salting them in spring and covering the manure with mould, to prevent evaporation. The rain carries down the strength of the winter covering to the roots, and when spring arrives it might be raked off into the alleys, leaving only mould enough on the beds to protect the roots from the summer sun. We have then asparagus, green and eatable almost to the very root. The Rev. George Wilkins, of Wyx, proved that by the above management he cut asparagus much earlier and in much greater abundance, with much finer flavor, than by

the deep-covering system. Sea-weed makes the best manure, where it can be had, for asparagus. Perhaps the finest asparagus I have ever seen was at Ipswich. The beds were at the bottom of a garden where the river Orwell runs past. During the winter this river overflows its banks, and some five or six weeks these beds are partially covered with water. This no doubt left a rich deposit; but the best time to irrigate would be in the growing season. The roots of asparagus are largely provided with fibres, evidently formed to take up much water, and my flat system would facilitate the irrigation system much.

GRASSES.

Alopecurus pratensis, or Meadow Foxtail Grass.

SPECIFIC CHARACTER OF DISTINCTION.—Stem erect, smooth; spike somewhat panicled; husks or glumes of the calyx acute; hairy and connected at the base; shorter than the awn of the corolla. A native of Britain.

DISSECTIONS.—Fig. 1. Calyx and floret magnified; 2. Anthers; 3. Style and germen magnified; 4. and 5. Style and germen natural size.

The produce of this grass, about the middle of April, from a clayey loam free from stagnant moisture, is:—

	Per Acre. lbs.
Green food,	9528
Affording nutritive matter,	483
At the time of flowering—	
Herbage,	20418
Dried, or Hay, ditto,	6125
Affording nutritive matter,	478
At the time the seed is ripe,	
Herbage,	12931
Dried, or made into Hay,	5819
Affording nutritive matter,	454

The culms of the Meadow Foxtail grass continue succulent long after the seed is ripe; hence it is that the culms of the flowering crop contain proportionally more water and less solid nutritive matter than the grass or herbage at the time the seed is ripe; a wise provision of bountiful Providence in the natural economy of the essential permanent pasture grasses, by which the herbage of this and other early flowering grasses increases in nutritive properties until the seed is ripe, and by the time the general summer grasses are in flower, (the period of growth at which these are most nutritive,) the whole or all the essential species approximate to a state of perfection as to their value for hay, containing at this period less water and proportionally more solid nutritive matter. Did these early flowering grasses afford more nutritive food at their period of inflorescence, (as is a general property of the summer, or commonly but erroneously called *hay-grasses*,) then in that case their value would be greatly reduced, inasmuch

as the seeds ripen at an early season; and were the culms to be reduced to nutritive properties by the ripening of the seeds, all that portion of the hay composed of these early grasses would be of an inferior quality, but which in fact is just the reverse.

The seeds of these more valuable early-flowering essential perennial grasses are light and often defective; a circumstance which detracts from their otherwise great value, because of the less facility afforded to their cultivation in the increased expense of saving or collecting their seeds.

For soils of an intermediate quality as to mosture and dryness, the Meadow Foxtail is one of the most valuable grasses for early growth, produce, and nutritive properties. In all the pastures most celebrated for fattening in England, this grass constitutes a large proportion, and is found to be closely cropped by the stock. There the Foxtail flowers in April, May, and in the beginning of June, and ripens the seed in June or July, according to the season of flowering, which depends on the nature of the soil, the weather, and the site of the pasture.

Poa trivialis, or Rough-stalked Meadow Grass.

SPECIFIC CHARACTER OF DISTINCTION. — Panicle rather spreading, spikelets three-flowered; florets lanceolate, five-ribbed, connected by a web; stipula oblong; stem and leaves roughish; root fibrous.

NOTE.–The sharp-pointed sheath-scale of this species of *Poa* distinguishes it with the greatest certainty from the *Poa pratensis*, with which it is often confounded.

DISSECTIONS. — Fig. 1. Spikelet of three flowers; 2. Calyx magnified; 3. Corolla; 4. Germen and feathered stigma.

When cultivated on a brown loam with manure, the produce of grass or green food is:

	Per Acre. *lbs.*
About the middle or latter end of June, when the grass is in flower, - - -	7486
Dried into Hay, - - - -	2246
Nutritive matter in ditto, -	233
When the seed is ripe, the produce is, Grass or green food, - - - - - - - -	7827
Made into Hay, - -	3522
Nutritive matter in ditto, -	336
The lattermath produce is, Grass, - - - - - - - -	4764
Nutritive matter in ditto, -	223

The superior produce of this meadow grass, its highly nutritive properties, the peculiar seasons in which it arrives at perfection, and the marked partiality which oxen, horses, and sheep have for it in pastures, are merits which distinguish it as one of the richest grasses for depasturing, on soils of a rich, moist nature. On soils, however, of light, sandy, and dry properties, it is of no value: the leaves become shrivelled up, the produce is not touched

by the stock, and unless the culms happen to perfect seed, the roots perish under such circumstances. It has, in the course of these remarks, been already mentioned that all the essential permanent pasture grasses grow more luxuriantly, and continue longer in the soil as individual plants, when they are combined with other species of the valuable grasses. It is the case with the present grass. There are no pastures in England celebrated for fattening properties, or for dairy produce, but contain a portion of this grass. The nature of the soil, as to whether it be inclined to moisture or to dryness, will determine the quantity of seed to be sown per acre in combination with others. This is a most valuable ingredient for water meadows. It is one of the grasses so highly spoken of in regard to the large produce of the Orcheston meadow in Wiltshire. Worlidge, who wrote in 1681, observes, "that at Maddington, in Wiltshire, about nine miles from Salisbury, grows a grass, *Poa trivialis, et Agrostis stolonifera var. latifolia*, 'which grass in some years grows to a prodigious length, sometimes twenty-four feet long.' The seed is ripe about the middle of July."

For the Plough, the Loom, and the Anvil.

HORTICULTURAL MEMORANDA.

THERE is nothing so fascinating about the cottage, the homestead, or the mansion, as a well stocked and highly cultivated vegetable garden, and its accompaniment, the flower-bed and parterre. With regard to the former, we have frequently trespassed upon the readers of the *Plough, the Loom, and the Anvil* with our crude ideas and forms of culture, which we doubt not, if faithfully put in force, will with ordinary energy prove a fruitful source of enjoyment for both the mind and the table. A copious supply of vegetables for the cook and housewife fills up sumptuously what would otherwise have appeared mean and meagre. We have to urge upon the fair readers of this volume the propriety of cultivating a taste and knowledge of the floral portion of the domain. Who does not admire Lilies and Roses, Violets and Mignonette, Pœonies, Pinks and Pansies—Forget-me-not, Love-in-a-mist, Honesty, Monks-hood, Love-lies-bleeding, Stock-jillies, Wall-flowers, and Jenny Lind Dahlias? These, with a hundred others of kindred associations, are no small inducements to form an intimate friendship for their culture, character, and management. The first secret is to get the names of your garden companions, and then you can have a delightful tête-à-tête with them on all occasions; without their names your interest and energies cannot be awakened in their favor to make "moments fly on golden wings." We subjoin the names of a few of the very best:—

White Lily
Japan Vanilla Lily.
Tiger Lily.
} Plant these in October, four inches under ground, in a well-dug soil incorporated with decayed leaves. They will bloom from June to August. There are three kinds of the Vanilla Lily: white, pink, and red-spotted.

Pœonia Whitlyii, white.
" *Reevesii, crimson purple.*
" *Pottsii, blush.*
" *humea, pink.*
} These can be planted any time in autumn or spring, in deep, rich ground. They bloom in May.

Pœonia arborea, double-flowered Tree Pœony.
" *papaveracea, poppy-flowered, single.*
} These grow into bushes three to six feet high, and are very splendid, flowering freely in the shade.

Violets. *Neapolitan, pale blue.*
" *Double, white.*
" *Monthly, purple.*
} These like rich soil, and will grow and bloom profusely in any situation. Plant them very early in spring. They flower from February to May, and the monthly has a continued succession of flowers.

Phlox, or *Mountain Pink.*
" *lactea, pure white.*
" *blanc de Neuilly, changeable white.*
" *Van Houttii, striped.*
" *speciosa, red.*
" *Charles, blush.*
" *Captivation, rose.*
" *odorata, purple.*
" *procumbens.*
" *subulata.*

} These bloom from April to November, and combine every shade of color. They require rich, loamy ground, planted any time from November to April. They require dividing and replanting into fresh ground every three years.

What shall we say of Roses? Amongst six or eight hundred varieties, where are we to begin, and where shall we end? If I had a hobby and that hobby was a bed of roses, it would never, from my choice, contain more than fifty sorts, and those could again be reduced to bring them to the standard of perfection.

Rose Bourbon, Angelina.
" *Hermosa.*
" *Leveson Gower.*
" *Madam Bosanquet.*
" *Souvenir d'Anseleme.*
" " *Malmaison.*
" *Henry Clay, Boll.*

} These are in color from nearly white to the richest dark crimson, and will be in bloom from early rose season till frost. All are perfectly hardy.

Plant them in very rich, light soil, any time from November to April; prune them in the winter season by thinning out the wood and shortening the shoots of the preceding year about half of their growth, applying a liberal supply of manure to their roots every winter. HYBRID PERPETUAL ROSES bloom about three times in the season, and are only desirable for the size of the flowers and very agreeable odor. They are treated in the same way as common garden roses, observing that as they are more frequent in their flowering they require more stimulation at the root, and severe pruning every spring to endure strong growth. The most distinct are Jacques Lafitte, rose; La Reine, lilac; Prince Albert, crimson; Lane, red; Youlande d'Arragon, rosy blush; Bocella, pale pink. Amongst Noisette Roses there are a few very distinct and worth particular attention. For a southern climate we advise to select Cloth of Gold, yellow; Triomph de la Duchesse, bright rose; Gold of Ophir, orange yellow; Lamarque, white; Sultana, crimson. Those for a northern climate must be more hardy in nature to resist cold. Such may be Fellenberg, red; Phillipart, peach-blossom color; La Nymphe, pink; Feastii, nearly white; Washington, pure white. In the culture of Noisette Roses pursue the same system as advised for Bourbons, giving the plants the support of strong stakes, or planting them at the foot of columns, around piazzas, or on arbors.

There are other two families of the Rose from amongst which a few can be selected for open air culture. Those are the *Tea* Roses for the South and the *Bengal* Roses for the North. Of Tea Roses we can confidently place Devoniensis, creamy white, tinged with blush; Antherose, white; Adam, rose color; La Sylphide, buff; Princess Maria, pink; Maréchal Bugeaud, bright rose; Triomph of Luxemborg, rosy buff. In Bengals, for a northern latitude, we name Agrippina, the prince of crimsons; Cels, blush; Queen of Lombardy, bright rose; Rubens, dark rose; Triumphant, changeable crimson purple; Saffrano, or yellow daily, yellowish buff. These varieties will give a perpetual succession of bloom throughout the entire season.

There are a few other hardy plants that require a passing notice. Of shrubs procure Wigelea rosea, rose-colored; Forsythea vindissima, yellow; Spirea prunifolia, double white; Spirea Reevesii, white; Spirea Douglassii, pink. Amongst plants that die down and come up every season, select Campanula nobilis, spotted; Plumbago larpantea, blue; Japan Anemone, red; Spirea lobata, pink; Crinum longiflorum, blush. The above selections will give a source of pleasure, with flowers in abundance the whole season, and may readily be obtained from Thorburn, of New-York, or Buist, of Philadelphia; and from any respectable seedsman procure small papers of the following annual flower-seeds: Sweet Alyssum, German Asters, Convolvulus minor, Imperial Pink, Chinese Double Pink, Rocket Larkspur, Double-branching Larkspur, Golden Eschcholtzia, Erysimum, Californian Sunflower, Candytuft, Sweet-scented Martynia, German dwarf stocks, four colors; Nemophilla or Grove Love; Drummond's Phlox, all colors; Petunia, all colors; Portulaca, all colors; Thunbergias to climb; Verbena vinea, Pansy and Mignonette. These seeds afford a great variety of colors and succession of blooming. Observe in sowing seeds to stir up the soil before sowing, which gives the seeds an opportunity to come up as soon as the weeds, from which keep every plant clear. Do not allow the plants to stand nearer to each other; keep them at least six inches to a foot apart; they grow stronger and flower finer, and will freely display their beauties from early spring to the colds of winter.

DR. SPARKMAN'S REPORT ON THE CULTURE AND PRESERVATION OF THE SWEET POTATO.

THE Committee appointed at the last anniversary meeting of this Society, to consider and report "on the best mode of culture and preservation of the sweet potato," have endeavored to obtain practical information from the most experienced and successful planters of this State, and with a view of comparison as to results, have also extended their inquiries to most of the Atlantic, Middle, and Western States.

Much interesting matter has been obtained orally, by correspondences, and by references to various agricultural periodicals, which your Committee find it difficult to condense within the ordinary limits of a report. They have endeavored, however, touching matters of *general* interest connected with their investigations, to be clear, concise, and practical.

The convolvulus patatas, or sweet potato, may be traced back to the 15th century. Mention is made of it by Gerarde, and allusions by Shakspeare may be found in his "Merry Wives of Windsor," act 5th, scene 5th, and also in "Troilus and Cressida," act 5th, scene 2d. (See Exp. Notes, in Boston edition, by Hilliard, Gray & Co., 1836.)

Professor Smee says, "About the year 1600, and for some time after, the convolvulus potato is spoken of as the common potato, and our present potato (the Irish) is noticed as the new potato from Virginia. Now the tables are completely turned; the sweet potato is become the scarce one, being worth nine pence a pound, and frequently not to be procured, whilst the other is in every day use." During the fifteenth and sixteenth centuries, the markets of England were chiefly supplied by importations from Spain and the Canaries. We have been unable to trace the potato back to its nativity, or to note the full extent of its cultivation, geographically, but there is ample testimony, that it may be grown in all temperate latitudes, and abundantly in all warm climates. In Great Britain they are produced by artificial heat, but in the southern portions of France and Austria, they are raised sparingly in open grounds. (See Notes on European Ag. So. Cab. 1840.)

The Irish potato, (solanum tuberosum,) introduced into England by Sir Walter Raleigh, in 1586, was then believed to be a native of Virginia. It is now determined to be a plant of South America. It grows wild in Chili and Peru, and is usually found

in steep rocky places, where it could never have been cultivated. It is further stated by Professor Smee, that "the present Irish potato is an abnormal deviation from the wild or native plant, and upon the authority of Moline, it is asserted, that the natives distinguish the wild potato, of which the tubers are small and bitter, from that which has been cultivated for a long series of years." Whether, like the solanum, the present varieties of the convolvulus potato are abnormal deviations from the native plant, improved by culture, we are not able to decide, but the conjecture is highly probable. *In many of the Northern States this root is believed to be the peculiar growth of the Carolinas, and is found in their markets as the "sweet Carolina," derived no doubt from the fact that it has been more generally appreciated, and successfully cultivated in these States than elsewhere.

Of later years, however, since the emigration of our citizens to the more Southern States, its cultivation has been extended, and it may now be found from Georgia to Louisiana. In all this region it is quite productive, and although in many instances it is only valued as food for all kinds of stock cattle, the planters are becoming more alive to its importance as a *provision* crop for their people, (especially their little negroes in summer and autumn, when all provision grains are more or less depredated upon by bugs and insects,) and have been directing special attention to the "best modes of preservation." The root varies somewhat in character in different soils and climates, but as there are many varieties of the sweet potato, all of which are highly productive and nutritious, your Committee respectfully suggest that a little observation and attention to the adaptation of soil for the growth of any given variety, might materially favor both its cultivation and preservation.

The yam is conceded to be in the greatest perfection immediately upon the sea-board, while the Spanish and leather coats, highly valued in the interior of North Carolina are equally fine in the middle and upper districts. The Bermudas, or white reds, (red skin with white heart,) though with us particularly adapted to the yellow sandy soil which skirts the coast, is also a favorite in Georgia, Alabama, and the West Indies, and is preferred in the more northern latitudes in which it is grown.

With the view of comparison, (as before intimated,) your Committee, during the past summer, through their chairman, addressed a circular to various distinguished agriculturists in this and other States, asking information upon the most important matters connected with their appointment. The information received, in answers thereto, shows a result highly creditable and gratifying to the planters of Winyaw and All-Saints, who have not unfrequently borne the reproach of not being "*a farming people*," or in other words, of being behind their neighbors in the cultivation of any thing excepting rice. We find the potato crops of this district equal to, if not more abundant than those of any other section, and that too with a disadvantage as to soil, most of our uplands being naturally poor and unproductive. In the more Southern and Western States, where corn is an abundant crop, compared with that grain, the potato crop is about as two to one;† but it should be mentioned that, with few exceptions, the system of manuring their potato lands is little known and seldom practised. With us in the rice region, where our corn crops scarce reach an average of twenty bushels per acre, and where the maximum average on a few favored and highly cultivated plantations has never exceeded fifty-five to sixty bushels, we have received returns of potato crops averaging from two hundred to seven hundred bushels per acre; and in one instance a yield of one thousand bushels per acre is authentically reported to have been made on Black river. (See Report to this Society on Manures, by Dr. E. T. Heriot, 1848.)

We will now give the answers to the interrogatories made by us, in the order in which they were propounded.

1st. Soil. What kind to be preferred?

This depends much upon the character of the manure, or fertilizing ingredient to be used. All planters agree that a rich, high, dry, *sandy* soil, is well suited to the culture of the sweet potato; but various experiments have proved satisfactorily that stiff clay or alluvial soils, when liberally supplied with a *silicious* material, such as oat or rice straw, will produce more abundantly than the best sandy lands. Colonel Bludworth (formerly of North-Carolina, now of Louisiana) says: "Deep loam and

* In the uncleared swamps of South-Carolina is found a convolvulus plant, resembling in its vine, leaves, and blossom, the commond red potato. The root is small, tough and fibrous. Our negroes call it the Indian potato. We are not aware of any attempt to improve it by culture.

† What does this mean?

old alluvial soil yields more than the best uplands." We recommend, therefore, for the yam potato, old alluvial loam sand *if thoroughly drained;* but for reds of all kinds, a heavy yellow sandy soil.

2d. Manures.

We may enumerate all green crops listed or ploughed under, oat and rice straw, and stubble, pine trash, salt marsh, marsh mud, cotton seed, lime, composts, &c., especially when trampled and incorporated with the droppings from sheep, hogs, horses, and cattle.

How and when applied? In corn and cotton regions movable cow-pens are universally recommended, claiming the advantages of spreading and incorporating the manure more regularly and uniformly, and saving the labor of carting. New lands, or those which had been fallowed the year previous, are selected as being less grassy. The cow-pens are passed over from four to six months previous to planting, and the ground well broke up with the plough as soon as the pens are removed. When this system has not been premised, the land should receive two listings—the first very light, drawing into a list or ridge whatever growth there may be; and the second taking the superficial earth from the alleys with the view of getting all the grasses and their seed under the bottom of the beds. Well rotted manure is then applied, broadcast over the whole surface, or spread in a drill on the list, the alleys thoroughly broken up with the plough, and the beds made up with the hoe when ready to plant. When cotton seed has been used, two to three packs have been found sufficient for each half acre row. Roots do not require as rich a soil as slips. They do best with old well rotted manure; slips grow freely on new lands with fresh manure.

With us the plan of cow-penning is impracticable, as large stocks of cattle are found unprofitable on rice plantations. A little system and attention, however, to our stable yards, and the stationary pens of our work cattle, has done much for the improvement of our high-land crops; much more may be done by making the accumulation of manure a part of the economy of every plantation. Where rice straw (our chief dependence) is used without being trampled by cattle, it should be applied liberally and listed in as early as possible—always after a good shower, or when the land is wet. When the ground has been cultivated the year previous, in some other crop, it should be ploughed up flush, and a deep, bold, open furrow then made at the distance required for the beds. The straw is placed in this furrow, and partly bedded under with the plough; the hoe completes the bedding just before planting. The tailings or winnowings from the rice crop is better than the straw and is usually set apart expressly for the potato field.

3d. Mode of culture.

Potatoes may be grown in hills or beds—in both they are equally productive. Beds are preferable, however, as they are more easily worked, and are less likely to be washed down by heavy rains. Various distances have been tried, from two and a half to six feet—preference is now given to the medium distance of four and a half feet from centre to centre. Time of planting—red potatoes for early use, the first good season after 20th March. Yams and others from 10th to 25th April. A correspondent from Ohio (So. Ag. 1841) says, that for many years his crop was planted in hills, placing three to four potatoes in each hill, and that he had fine, strong, luxuriant vines, but no roots. By putting only *one seed* to each hill, his crop was abundant.

In beds, a drill or trench should be made upon the top, the seed placed six or nine inches apart, and covered two to three inches deep, according to soil and season; the earlier plantings deep, especially if the soil is light. "The seed should be pressed down firmly with the fingers into the bed, and *fresh moist earth from the alleys* drawn carefully over them, instead of the usual slovenly mode of scraping the loose dry earth from the side of the bed." This earth from the alley (always more free from grass seed) should be pressed firmly upon the seed with the hoe, by which process the top of the bed becomes flattened, and may, if very wet, form a crust or hardening of the surface, through which the young sprouts will grow with difficulty. To obviate this, a second hand should follow the one covering the seed, on the opposite side of the bed, and haul up from the centre of the alley as before, bringing the top of the bed to a ridge or point, without compressing it. This renders the first picking of grass (the most important working of the crop) easier and more effectual. In connection with this, we would recommend, from our own experience, that each hand, when *picking* grass, should be supplied with a basket for the removal from the field of every blade that is picked out. In showery weather, or where the land is not quite dry, and the sun very hot, grass that is picked

from the top of the bed, and left on the side, or thrown into the alley, will again take root and increase the necessity for the early use of the hoe.

As to cutting the seed, planters are equally divided in opinion. All agree, that the vines are earlier, stronger, more vigorous and luxuriant from seed planted whole. In a very dry season, a stand is also more certain; but many contend, that the product of the crop (cæteris paribus) is in favor of the cut seed. They argue, that unsound seed will never bear well, even though a sprout be put forth, and that under the process of bisection they are detected and rejected; whereas, under the plan of planting whole, they are frequently overlooked, and of course, either fail in coming up, or in the product.*

The experiment has not been tested *accurately* by measurement, and the practice of dividing the seed may have originated in their scarcity. The largest crops reported, have been made under both plans. With the Irish potato, the gain of product in favor of the whole seed was one hundred bushels per acre, in an experiment accurately made in Connecticut, and reported in So. Ag., vol. 9th, 1826.

We recommend, therefore, in deference to all authorities, that for early eating, and for early vines, the seed be planted whole, for the general crop; when the seed are *scarce*, or *larger than necessary*, they may be divided, but into not more than two parts

In cultivating the crop, the tops of the beds should be picked and kept clean of grass and weeds, until the vines cover and shade the surface. The first show of grass on the sides should be destroyed by the hoe, and the beds hauled up the day after, selecting, if possible, a dry time for the work. After the second hoeing of the sides, the plough should follow, one furrow on each side being thrown from the bed, so as to cover all the grasses that have been hauled down by the hoe into the alley. From three to five days after, the plough should again pass through, throwing the earth back to the beds, and breaking up the alleys as deeply as possible. This work of "ploughing down and up" should be done as the vines are extending into the alleys. The hoe must be resumed for completing the process, by hauling the beds up to their primitive size, care being taken to lift the vines, and spread them along the tops of the beds, without bruising or covering them. Any bunches of grass that may survive this dressing, should be pulled up before the tubers or small potatoes are formed.

Slips should be planted the first good season after the vines are strong enough. The land should be highly manured, well ploughed and laid off in beds, at the distance of four and a-half feet. In a good season, three vines laid carefully upon the tops of the beds about two inches apart, will do best; if the season is either doubtful or dry, put four or five vines, (to insure a stand,) and bank heavily with fresh earth from the alleys, every alternate twelve or fourteen inches. To secure seed for the ensuing crop, a few vines should be planted late, say first of August. The best seed are procured by planting vines from vines, viz.: the growth of the vines of the first or early plantings; they will be small but *round and not stringy.*

With the view of increasing the productiveness of this crop, it was recommended in 1836, by a correspondent of the *Southern Agriculturist*, that as soon as the vines had taken root, and began to grow, they should be cut through with a hoe or spade, by chopping across the beds mid-way where the earth is banked. It was asserted, that the crop would be nearly doubled, "as tubers or roots would be thrown out at each divided end more numerously, as always appeared at the butt ends of the vines at the beginning of each row." By request of my venerable friend, Dr. Joseph Johnson, of Charleston, I had the matter tested during the past summer, on my own place, and obtained the co-operation of several neighbors in the same experiment on their places. The plan adopted was to cut the vines of every alternate row in a given half acre of land. The result was found unfavorable.

4th. Productiveness.

Upon the poorer class of sandy lands, the potato crop is the most productive that can be grown, being by weight five to fifteen times greater than corn †

Of roots, a good average crop is from two hundred to three hundred bushels per acre—of slips, two hundred to four hundred bushels. Where the system is practised of "manuring highly, and planting less," these figures may be doubled. Alluvial soils, formerly considered unfit for the growth of this crop, are now in high repute, in many sections of the country. The experiment was tested with vines in this district about twenty years ago. A rice field was bedded up in the winter, and

* A good *sound* reason.

† Suppose corn as well manured and cultivated.

planted in oats, which matured well, and were harvested in June, and in July the beds were reversed and planted with vines.

The field was well drained the whole season; the product of this crop entirely satisfactory. Since that period it has been a part of the care and economy of the Sandy Island planters, (who have no uplands that will compensate for the labor,) to appropriate a small portion of their swamp lands annually for this most valuable provision crop, and where the field has been well drained, they have never failed in their expectations.

A similar experiment was made with roots the last year, by Mr. Joshua W. LaBruce, of Sandy Island.

After bedding up five feet apart, in the month of April, he planted one acre in yam potatoes, the remainder of the field being fallowed for the destruction of volunteer rice. Before the sprouts of the potatoes had come through, the alleys and sides of the beds were thickly covered with rice straw, so as to shade the land completely. What grass came up on the tops of the beds was picked out from time to time, by an aged and inferior hand, and the crop was made without any additional labor. In harvesting the product of several rows was measured, and the smallest yield per row, of one hundred and forty-five feet in length, was seven and three quarter bushels of good eating potatoes, as sound and well flavored as are grown on the best uplands. The single acre is thus computed to have given five hundred bushels, being equivalent, *as provisions*, to one hundred and twenty-five bushels of corn, and to two hundred and fifty bushels of rough rice.

This plan of strawing upon high lands is strongly recommended, especially where pine straw can be gathered conveniently and abundantly. For both roots and slips, it possesses advantages in keeping down grass, retaining moisture, and preventing the injurious effects of heavy washing rains, succeeded by a scorching sun. The labor of collecting and bestowing the straw may be regarded as equivalent to the working of the crop; but whatever benefit is derived to the growing crop must be doubly shared by its successor in the increased fertility of the land. Although the potato makes a large return to the soil in its leaves and vines, and is generally esteemed highly recuperative to the land, it is well known to be a very exhausting crop, and the same ground should not be planted in roots more than two consecutive years. In one instance, after thirteen years' culture, without change or rotation, even with the addition of seven hundred to eight hundred bushels of compost manure, the crop failed entirely. The same resulted with oats and slips after ten years. (So. Cabinet, 1840.)

Mr. Tuomey, in his Geology of So. Ca., asserts from analysis, that every one thousand pounds of corn takes from the land but five and a half pounds, whilst every one thousand pounds of potatoes takes seven and a half pounds of their respective constituent fertilizing ingredients. It is also said, that a bushel of potatoes, fresh dug, will weigh from seventy to eighty pounds, and Col. Bludworth "once pulled up the vines from a single hill, from which were hanging sixteen good potatoes, averaging one and a half pounds;" he also recollects seeing a single potato raised on old river bottom soil, weighing ten pounds; from all which it may be readily conceived, how indispensable to rotate this crop, even on the best lands.

5th. Varieties of the potato—which preferred.

There are several varieties of the red, and two or more of the yam, as well as the Spanish. We are also familiar with the Scotch or leather coat. Of the reds, the Bermudas or white hearts, the brimstone, Mexicans, Africans, &c., all have their friends and admirers.

We prefer the Bermudas for summer use or early eating, as being most wholesome, early and productive, and the white yam for a general crop. It is very productive, nutricious and well flavored, and is the most easily preserved. The leather coats are the most productive in *very poor sandy land*, and are preferred by many of our sand-hill farmers. The African (red) keeps well, and is also productive, but not as early as the Bermudas.

6th. Preservation.

It is a well known fact, though unexplained, that root potatoes do not keep as well as slips, or tubers grown from the vines. I will not detain the Society with the many interesting speculations and comments on this point, but simply notice what is stated as the experience and practice of some of the Alabama planters. "They show that roots may be preserved as long as slips, *if they come in as late* and are put up in *hills*." They recommend that roots be planted at different inter-

* Is there any analysis of the sweet potato?

vals from the last of February to the 1st of June, so as to have a succession of crops, which, to some extent, meets the contingency of a failure in an *early slip crop.*

The difficulty of preserving this crop does not arise, as is supposed by many, from its being housed at an improper time, either too early or too late; nor, as is believed by some, from a want of care in selecting and rejecting such as may be cut or bruised in gathering them; nor, as is assumed by others, does it depend upon the soil being too rich or too poor, or the season too wet or too dry. All these supposed causes may, possibly, exercise some influence, but the immediate and direct cause of rot is *sudden fluctuations of temperature.* The only secret, therefore, of preservation, is to keep them at a moderate but *uniform temperature*, insensible to the vicissitudes of weather—insensible to the changes of heat, cold and moisture. Slips made in alluvial soil, or low wet grounds, keep just as well as those grown on dry sandy lands. In one instance we witnessed a crop harvested on the rise of a freshet, when the water had gained so as to cover the surface of the land; and although a large portion of the crop was taken out of the water and removed immediately, while wet, to the cellars, they kept quite as sound during this season as they usually do under the most favorable circumstances.

Three plans are in use for the preservation of the potato, viz.: in hills, in cellars, and in framed buildings. The first is to select a dry sandy spot, all vegetable matter being removed from the surface, for several feet around; to plant a pole or stake in the centre around which the potatoes are piled up conically, from twenty to fifty bushels to each hill or pile; then to be thickly covered with clean dry pine straw, over which a second covering is made with corn stalks or pine bark, and the whole heavily banked with earth. The pole or stake should be drawn up after banking, and the air hole or ventilator thus kept open by a loose covering of bark or straw for several days, but to be securely closed over before cold weather sets in. This plan succeeds well where the banks or hills are sheltered by scaffolding from heavy rains and freezing weather. It is impracticable, however, for harvesting a large crop, and we can only advise it as *the best method for keeping seed slips.*

The second plan, in cellars, is the one most generally adopted. A high dry spot being chosen, a centre string piece raised from six to nine feet, and supported by posts set in the ground, is firmly fixed, and rails or puncheons resting upon this, are extended down and around on either side, giving a diameter to the cellar of fifteen to eighteen feet. The length, to suit the size of the crop, from forty to one hundred feet. Corn stalks and bark are placed over the rails, and the earth banked heavily over this—the top being protected by bark or a ridge board.

Many minor matters of detail are to be observed under this plan. The cellar should be built of seasoned rails, or puncheons, (not those fresh split from green timber;) it should be erected two or three weeks before the crop is housed, and a fire kindled in it every day to exclude all moisture; it should have a southern front, and the rails should extend eight or ten feet beyond the entrance or door, to prevent the access of driving rains, to give shelter for the watchman in charge, and to allow room for kindling a fire on the outside. The slips are to be dug (after a frost sufficient to check vegetation) on a sunny day, and are to be placed in the cellar *before sundown*, so as to escape the dew. They must be piled carefully, avoiding any pressure against the rails around the foot of the bulk, and all that are cut or decayed in any way, placed in a corner to themselves.

In addition it has been recommended, by some, to sprinkle dry sand among them, as they are brought in, with a view of absorbing any moisture that might arise. Others, again, pursuing the opposite extreme, dash them with cold water to prevent their heating, and the friends of both these recommendations claim great success. In our judgment much more depends upon the particular season than upon any special mode of treatment.

The experience is universal that in a moderately cold and dry winter, our crops keep well; and in sultry unseasonable weather the loss is great. To this rule there may be individual exceptions; but we hazard nothing in asserting that they will be found among the shrewd practical observers, who adopt the plain teachings of nature in keeping their cellars open and cool in warm weather, close in cold, and as dry as possible (by smoking) in damp weather. The objection to this plan is chiefly in the annual or biennial expense of building.

Where timber is already scarce, and daily becoming more so, we are forced almost necessarily to the adoption of the third plan of erecting framed buildings.

Brick cellars have been tried but soon abandoned, in every instance that has come to our view.

Framed buildings have been used about five and twenty years. A correspondent

of the *Southern Agriculturist*, (vol. 2d, 1829,) describes one which he had erected two years previous, and which had succeeded to his entire satisfaction. He says, "The house is forty feet long, twelve feet wide, and eight and a half feet high to the top of the plates; it is framed in the common manner of houses, roofed in the usual way, with good cypress shingles; the posts are set in the ground, they are several inches thick, with a groove near the inner edge to receive puncheons one inch thick, split like rice barrel staves; it is weather-boarded with inch boards, between which and these puncheons on the inside is a space of four inches filled with well tempered clay, forming a close wall supported and defended from weather by boards without, and the puncheons within. One door in the middle of the southern broadside, no other opening in the house. The interior is divided off into four compartments by the same process of filling in with clay, and the loft is covered with rails and filled in with straw. No ventilators or air holes are requisite. The door kept closed as constantly as practicable, both to shut out the external air and in compliance with a recommendation from Cobbett to exclude light from roots and vegetables when housed."

In this and the adjoining Parish, framed cellars are built pretty much after the foregoing plan, excepting the walls of clay. They are made from fifty to one hundred and fifty feet in length, about fifteen feet wide, tightly weather-boarded and shingled. Spouts or ditches (covered loosely with boards through which are many auger-holes made for the passage of the smoke) extend from a pit some few yards removed from the cellar, and ramify under the potatoes through the entire length of the building. Every damp day, for several weeks after housing, a smoke is thus forced through them, and in very cold weather the top of the bulk and around on the sides is thickly covered with straw to meet the change; and if the weather becomes warm, the door is opened to allow a free circulation. This plan succeeds well, and your Committee believe that it will be generally adopted as the most economical, and therefore the *best*, that they can advise. We have seen framed cellars which hold 30,000 to 40,000 bushels, and the proprietor informed us that his potatoes kept perfectly sound even though crowded together in such large numbers.

We have also seen a cellar constructed by R. F. W. Allston at his Nightingale plantation, with a thatched roof, in which during the past winter the crop was kept in excellent preservation.

The Chairman takes leave to acknowledge his obligations to all who have aided him by contributing the materials for this report, but especially so to Dr. Joseph Johnson, of Charleston, and Mr. Charles H. Mason, of Indiana.

Respectfully submitted. Jas. R. Sparkman, *Chairman.*

April 18th, 1850.

AGRICULTURAL CARRIAGES.

On a farm of 1000 acres of good land, cultivated on the four-course, or Norfolk system of cropping, there will be probably 200 tons of hay made per annum, which, we may suppose, will be carried on an average three fourths of a mile to the rick: supposing one half of the roots to be harvested and carried to the yards for consumption, there will probably be 2000 tons of roots carried three fourths of a mile: there will be 1000 tons of grain in the straw carried three fourths of a mile to the stack-yard: there will be probably nearly 400 tons of grain carried 10 miles to market: there will be some 40 or 50 tons of food or manure carried home that distance from market: and there will be nearly 4000 tons of manure every year carried three-fourths of a mile, from the yards to the fields. The subject of agricultural carriages may thus well be considered of importance to the business of such a farm. Adding up the above items, we have a total equal to nearly 10,000 tons, carried a distance of one mile; and if to the weight of the load there be added, in each case, that of the vehicle as well, which in the case of a field carriage will be found equal to fully 60 per cent. on the load, we obtain the amount of 16,000 tons carried one mile, as the labor of this kind executed, per annum, on a farm of 1000 acres. But this amount must be still further increased, for an empty carriage* returns for every full one that goes; and supposing our estimate at 60

* The forty or fifty tons of return carriage from market are not referred to here; but this small inaccuracy will not materially influence the result.

per cent. on the load fairly to represent the weight of the conveyance, we must add to our former amount 6000 tons carried one mile, on this account. Now the labor of carriage on fields and farm roads may be assumed equal to a lift of one eighth of the load. To pull 22,000 tons one mile along the surface of the field or road, will be nearly the same as lifting 2750 tons one mile high. Now the working year may be supposed equal to 250 days, of ten hours each; but a horse in a cart is not continually moving; it is at rest during the operation of filling and emptying, and therefore the time, per annum, in which it could be engaged in actually shifting the material it has to convey, cannot be put at more than three fourths of the above, or 250 days of seven hours and a-half each; and a little calculation will show, that to lift 2750 tons one mile high, in 250 days of seven hours and a-half, requires a continual lifting of 290,000 lbs. per minute. This, according to Watt's estimate of a horse power, represents the constant labor of nearly 10 horses. And if we take the period during which there is most hauling, and ascertain the quantity of labor of this kind which must be done within a given time, in order that the ordinary routine processes of cultivation may be carried on, we shall find that the labor of carriage alone necessitates the employment of quite if not more than one half of all the horse labor the farm employs.—*J. C. M., in Morton's Cyclopœdia of Agriculture.*

AGRICULTURAL EXHIBITIONS:

OUGHT TO PROMOTE INQUIRY AND DELIBERATION, AS WELL AS SIGHT-SEEING.

THERE is, in the last *American Farmer*, a capital paper on this subject from C. P. HOLCOMB, Esq., of Delaware. His suggestions are excellent and exceedingly well put: but alas! until we have a radical reform in our systems of education for farmers' sons, leading them while young to look on Agriculture as an intellectual pursuit, requiring peculiar and *appropriate* instruction and training; until *that* bent is given to the mind while yet in the gristle of its formation, it will be found that men, mere children of a larger growth, will continue to take much more pleasure in the use of the *eye* than of the *understanding*—of the senses than of the mind. Yes, truly, it does look absurd enough to see grown men, coming from all parts of the State, and from beyond it—men well known for their practical knowledge and for the possession of much useful information, founded on the best of all knowledge, experience—to see a body of such men (conjunctions so rare) coming together as at Baltimore, and then spending their whole time, when not on the show-ground, spouting and discussing unimportant details with as much earnestness as if the welfare of Agriculture and Empires hung upon the issue.

Well was it said by Mr. Buffin in his late address, that the great progress made in Agricultural Improvements within the last thirty years "is *mainly* due to the diffusion of Agricultural papers. In the actual absence of all other means, these publications, *almost alone*, have rendered good service in making known discoveries in the science, and spreading knowledge of improvements in the art of Agriculture." If, indeed, such farmers *could*, when brought together, persuade themselves to pass even two or three days—not to indulge men in speech-making for the sake of hearing themselves talk—but for deliberation and useful inquiry into the experience of practical men, and to learn the facts which their experience had established, it would do more good in awakening the mind and diffusing useful knowledge, than a dozen exhibitions of bullocks not *much*

larger, and sheep not *much* fatter, and horses not *much* handsomer than such as have been seen a thousand times before.

In fact, where knowledge is only to be imparted and the progress of Agriculture is only to be indicated by *exhibitions*, once in three or in five years would be sufficient to show all that is actually new and illustrative of positive progress in Agriculture—that is, progress to such an extent, and in such variety, as to justify the trouble and expense of a Public Exhibition.

The most important improvements, and such as are most likely to occur, take place in the department of *Implements;* and the least observable, from year to year, takes place in that of *Animals.* In this last, what was there at the last, that was not seen at the first of these State Fairs? Was there any visible advancement in the qualities of the horses, cattle, sheep, or hogs? It is even questionable whether, if exhibitions were held once in three, or four, or five years, they would not be more enduring in themselves, and in their good effects, marking more distinctly and instructively the progress of improvement—a progress not to be measured by months or years, but by periods of years. And then for any intermediate improvement in implements, the implement maker, with the aid of the engraver, when necessary, can always diffuse widely a knowledge of such improvements through the agricultural press. After all, and that about which there can be no dispute, it may be asserted that no Father honestly discharges his duty to sons whom he intends to follow the business of agriculture, who does not use his utmost exertions to provide for them that *sort of education* which is best adapted to enlighten and qualify them to push their business with the greatest efficiency. Neither does any farmer do his duty to himself becomingly, who withholds from agricultural periodicals that patronage which all farmers bestow on the papers of the *party* to which they *belong*, be that party which it may.

Mr. Holcomb, in the excellent paper to which we have referred, would seem to take a nice distinction between the "Canada reciprocity" question, and the general question of protection to American industry, which even he would seem to repudiate, as a political question not proper to be entertained by societies expressly established to guard and promote the interests of Agriculture. Now, we would like to know how one of these questions could be discussed without running into the other? The fact is, that this reciprocity question is only *a case in point.* The difference between that and a more general view of the protection question is, that *it* serves to bring the whole theory of free trade to a *practical issue.* It brings the whole question up, and it brings it home; and the only reason why *it* commands more immediate attention is, that it happpens to prick us in a more sensible part. It is seen and felt at once to *touch the pocket nerve!* and if the free admission of Canada wheat touches the pocket nerve of the Delaware and Maryland wheat-grower, so does the admission of iron and cloth, made by pauper labor, and admitted under ad valorem duties, founded on fraudulent invoices, touch the pocket nerve of the American makers of iron and cloth—puts out their furnace fires, stops their mill-wheels, and converts the men at work in them, who were good *customers* to the Maryland and Delaware wheat-growers, into *rivals*, increasing every where the quantity, and diminishing the value of agricultural products to be consumed, while diminishing the power to consume; arresting the progress of agricultural improvement, for which these very societies are formed, and spreading deterioration and ruin far and wide.

The naked truth is, that the whole question of protection and free trade is one that *most peculiarly belongs to Agriculture*, and to those who *associate* for its welfare. It is one that it becomes farmers, of all people, to look into, to discuss, and to judge *for themselves:* not in the vulgar contracted spirit of *party*, and of sordid calculation as to its bearings on the acquisition of party power, but as a high, lofty national question, to be understood and decided upon its own merits. The policy which tends to separate consumers from producers, interposing between them wide spaces of sea and land, much expense of time and transportation, wagons and ships, factors and porters, is either good or bad for the producer, and *that* is *the* question which American cultivators have now to decide—not as Whigs or Democrats, but as free-born AMERICANS.

Diminished consumption, which always diminishes value, acts as a clog on improvement, as it impairs the inducement to produce; whereas increasing demand, keeping pace with increasing power to consume, accelerates improvement of every art, whose products are thus rendered more valuable, by stimulating the motive to increase production. Thus, encouragement of home industry may be considered as in fact *synonymous* with advancement in Agriculture and the useful arts.

If the people could throw off the party hacks by whom they are ridden, and leave them lying stunned on the ground long enough to allow them to look into this question for themselves, it would be as impossible to resist the force of truth as to stop the progress of light, when morning follows night.

It strikes us, that a good way to come at Mr. Holcomb's object would be, for any member of the Society to hand up to the Chair a particular question that he wished information about, and he might designate the person that he presumed could best answer it. The President might use his judgment in the selection of these questions, with the understanding that the answer would be brief and to the point. This, perhaps, would prevent confusion. Mr. Holcomb, it seems, was disappointed in his very natural and laudable desire to have the Society unite, as such, in a remonstrance against the Canada reciprocity bill, and he accordingly thus concludes his communication:—

We must hope for the defeat of this measure, so warmly pressed by the British Minister and the New-York merchants. But if it is defeated, we can take no credit for it; it will be done by our Representatives, more true to us than we are to ourselves. I instance this to show what I consider a case of *over-much caution*, a degree of fastidiousness, that if carried to such extremes, may deprive the Society of much of its usefulness. But the just medium, when we become better acquainted, and our honest views are better understood, will easily be arrived at. While we agree to sink the politician, we will not, I trust, be without the *esprit de corps* that should unite us as agriculturists.

GREASE FOR CARTS, &c.—The following composition is recommended by a writer in the *Indépendance Belge* for greasing carts and other agricultural implements:—Take 4 lbs. of caoutchouc dissolved in a proper liquid, 1 lb. of gelatine, 10 lbs. of carbonate of soda, 45 quarts of animal or vegetable oil, and as much water; boil the water with the carbonate of soda and gelatine, then add the caoutchouc and the oil, stir the mixture well until it forms a homogeneous liquid. The above proportions may be varied, and if the caoutchouc and oil are previously purified, the carbonate of soda is unnecessary. The above mixture will be found very useful not only for greasing carts, &c., but also for keeping the farm harness in order.—*Flores des Serres.*

PLAIN DIRECTIONS FOR PLANTING AND CULTIVATING PEACHES.

A SUBSCRIBER proposing to settle near Mobile, Alabama, and cultivate peaches for that market, requested information as to the management of that fruit in Delaware, where its cultivation has become as extensive and successful, comparatively, as in New-Jersey.

The following is the answer to such inquiries as seemed best calculated to elicit the information desired. How beneficial to the community that the conductors of public journals should have it in their power to resort in such cases to men animated by the spirit to impart, as well as to seek and profit by the results of the most enlightened experience.

WHEATLAND, 26th Dec., 1850.

MR. J. S. SKINNER :

Dear Sir :—In reply to your request asking detailed information on the subject of *Peach-growing* in Delaware, I send you the following from PHILIP REYBOLD, Jr., who is the most extensive and reliable nurseryman in this section of the country. He says :—

1. He prefers the stone of the natural fruit; thinks they are more hardy and grow off better.

2. There is no reliance upon the seed of the Peach reproducing its kind. It is in that respect like the apple, or other orchard fruits.

3. Seed are best preserved by drying them in the shade where they are protected from the sun and rain. They may lie two or three inches thick by a little attention in keeping th m stirred. In three or four weeks they may be put away in barrels or boxes, and if perfectly dry they may be kept two or three years.

4. The seed of 1850 may be prepared thus: About the middle of May, 1851, excavate a trench, or bed, for convenience say four feet wide,* three inches in depth, and of sufficient length to hold the quantity of seed you wish to plant. At the bottom of this bed place the peach-stones, close by the side of each other, *but only one seed deep ;* then cover with the same earth that was taken from the bed, well pulverized, throwing the finest in first on the seed. Then let the bed remain *undisturbed*, without any other cultivation, or *weeding*, till the spring of 1852. The seed-stones will then be fairly open, some with sprouts from one eighth to one inch long. If the weather is warm in winter, cover the bed with straw or litter of some sort, so as to prevent sprouting too early. Keep them back somewhat, as we did the eggs of the *silk worm* in times by-gone, till ready for planting. For the nursery, the ground should be prepared *well* as for corn. Then strike out four feet wide, and *plant* your *seed* in the rows about eight inches apart; cover carefully with the hoe about two inches deep. The man that covers should walk on the row, so as to press the dirt close on the seed. Here Mr. Reybold called my attention to what

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* Our recollections go back further to observations made about agriculture and horticulture, rabbit-hunting, squirrel-shooting and trap-setting, than to any other subjects; and we remember well that the best nursery we ever saw of young peach trees was raised by our father, the late Frederick Skinner, of Calvert County, Maryland. The peach stones were sprinkled thinly in an old square plank bee-hive, with alternate thin layers of peach stones and fine earth, until the hive, perhaps two feet long, was filled. The hive was then buried in the garden, and remained through the winter. In spring it was taken up, and the stones had burst and the kernel was ready for planting. We don't remember that the kernel was taken out from the stone as here prescribed, for the whole process was noticed only as a boy's idle curiosity leads him to be peeping into whatever is going forward when he ought to be learning his lessons. But we remember that every kernel took root and produced straight, beautiful, healthy looking young trees.—*Ed. P., L., and A.*

he called a small but important matter, from an inattention to which he had suffered in his products, at least, the three first years of his practice. In taking up the seed from the bed in which they have been planted, have a sharp shovel in a careful hand. Scalp off the covering of the seed, but not so close as to disturb them. Then turn up the seed with the shovel by running it under the seed, and when so turned over the seed are to be taken up carefully with the hand, and to be carried at once to the planting ground or nursery, and put in as before described. All seed taken up should be planted the same day, as frost of the night or hot sun might injure the germ. The *kernels only* are to be planted, no part of the *hulls*. After thus planted in the nursery, then cultivate and keep clean, as for corn or other garden or field culture; not to be transplanted, but remain here two years, when they are ready to plant in orchard. The seed will come up in about six weeks.

WHEN TO INOCULATE, OR BUD.

In August or September, the later the better, the first year after planting. Buds for inoculating with should be selected from healthy trees. *No trees* which show symptoms of *yellows*, or *decline*, from any cause, should be used. You ask what kind of fruit is best to bud from. Bud from the catalogue here sent; it embraces eighteen varieties of *choice fruit, easily distinguished*, and comprises the best and only *necessary varieties* required for the Philadelphia or New-York markets. The Peach of the open varieties are preferred now as of the olden time of which you spoke. Indeed in New-York a Cling, except for preserving, is seldom inquired for.* Healthy Peaches of the Early Troth variety will be ready for market from the 3d to the 6th of August; the Peach market lasts about two months. Of the selections here recommended some of the varieties are constantly ready for market, in the order in which they are numbered.

Budding should be done late, so as to finish while the sap is in the wood, but not so early as for the bud to start growing before the next spring.

The spring after budding cut the top from the young tree close above the *bud*, and be particular to keep all *natural sprouts down*, allowing *nothing but the bud* to grow, which will attain from five to seven feet the first year. Prune nor trim none, unless in case of deformity in the young tree.

After the tree has got its growth, in September or October, trim up to the shape you wish it to grow, say three and a half feet high. The trees are now ready for *planting*, which may be done that autumn or the spring following.

PREPARATION FOR PLANTING ORCHARDS.

Plough and prepare the ground *well* as for any other field crop. Then strike out twenty feet each way; dig holes say sixteen inches square to a depth so as to plant the trees about two inches deeper than they stood in the nursery. The orchard now being planted should be cultivated with corn, for at least three years. The fifth hill in every fifth row of corn will be filled by a Peach tree.

The third year after planting, the tree will be in full bearing.

The above information was obtained from Mr. Reybold in person, who was so unwell at the time as not to be able to sit up. He was kind enough to call in his nurseryman, Mr. Samuel Lewis, to assist in detailing the above. Had I been as apt in taking down correctly as they were in giving the information sought, the paper might have been well worthy a place in "THE PLOUGH, LOOM, AND ANVIL." I am unused to taking down statements of this kind, and have my fears of its answering the purpose you require.

Mr. Reybold had 30,000 trees budded with choice varieties last fall. His usual

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* Our friend is under a misapprehension. We too have noticed in New-York and Philadelphia the preference given to the open or free-stone peach, but south of that, and in our youthful days—we don't know how it is now—the preference was as universal for the *cling-stone* peach, for eating by itself. The open stone was preferred generally only for eating with milk. For ourselves, we have never met with any peach yet equal to the large October Heath Cling-stone Peach, white, with a blush on one side, which grew on an old peach tree in that same garden in old Calvert County.—*Ed. P., L., and A.*

quantity heretofore has been 20,000 each year. I did not learn the quantity of baskets sent to market the past season by the Reybold family, but as 1850 was considered a full average peach-bearing year, I presume they sent their usual share, which has been as high as 106,000 baskets.

Truly your friend, I. J. JONES.

DELAWARE FRUIT TREES.

The subscriber, at his Nursery, directly on the road from St. George's to Delaware City, has for sale a quantity of the *choicest descriptions* of Peach Trees, suitable for transplanting in the fall or spring, of the following varieties:

PEACH TREES.

PEACHES RIPEN AS NUMBERED.

1. Troth's Early Red.
2. Large Early York.
3. Yellow Rare Ripe.
5. Old Mexon—free.
6. Old Mexon—cling.
7. Red Rare Ripe.
9. Red Cheek Malagatoon.
4. Morris White.
8. Magnum Bonum.
10. Late Yellow.
11. Crawford's Late.
12. Ward's Late—free.
14. Cailaber's Pavie—cling.
17. Smock.
15. Delaware Late—free.
16. Patterson.
13. Late Heath—free.
18. Late Heath—cling.

APPLES.

SUMMER.

Large Early Bow.
Summer Pippin.
Summer Peer Main.
Summer Queen.
Red Kane.

AUTUMN.

Maiden Blush.
Rambo.
Cabbage Head.
Fall, Holland, or Golden Pippin.
Red Streak, or Haze Apple.

WINTER.

Bellflower.
Cumberland spice.
Roman Stem.
Winter Pear Main.
Turn-off Lane.
Lady Apple.
Paradise.
Falwalder.
Green Newtown Pippin.
Yellow Newtown Pippin.
Gilpin, or Cart House.
Grind Stone.
Rusticoat.
Gray House.
Smoke House.
Rhode Island Greening.
Red Baldwin.
Peck's Pleasant.
Black Gilliflower.
Roxbury Russet.
Winter Greexon.

Peach Trees are two years old from the seed, being but one year from the bud; are from five to seven feet in height.

Apple Trees are five and six years old from the seed, and from three to five years old from the graft.

The utmost confidence may be placed upon the Trees being of the kinds specified.

PHILIP REYBOLD, JR.,
Near St. George's, Delaware.

November 14th, 1849.

TO POUND RED PEPPER.—This sometimes bothers young housekeepers, and old ones too. The way they "fix" it in Virginia, is to tear or break up the pods; then mix them up with as much dough, made of corn-meal, as will give them proper consistence and cohesion, and then bake it as a hoe-cake, until it (the cake) is brown, and then beat it all together in your pepper mortar. It will then be strong and of a handsome color.

THE POTATO CROP AND ITS DISEASES.

INQUIRY BY THE FRENCH GOVERNMENT.

WORTHY of all imitation is the practice of foreign governments to institute, through their agents abroad, inquiries into subjects that may enlighten the course, or increase the products of agriculture and horticulture.

Not only by the English Government, but by several on the Continent, important and effective measures are taken with that view, not merely by statistical inquiries, but by the establishment of institutions for the cultivation of sciences immediately bearing on that art which has been well called the mother and the nurse of all others.

The following inquiry, from the Commercial Representative of the French Government at Philadelphia, was promptly answered in the manner requested, and is here published, more with a view to acknowledge the want of light, and to solicit it, than in any pretension of being able to supply new and reliable information on a subject which, more than any other connected with vegetable physiology, has attracted the regard of scientific investigators.

It is proper to add, in this connection, that a free tender was made of this Journal, not only to the French and other foreign Governments, collecting data on agricultural subjects, but to all kindred journals and societies abroad, there being nothing more incumbent or agreeable than the free interchange of courtesies and of information, that may prove mutually advantageous.

PHILADELPHIA, Jan. 31st, 1851.

MR. JOHN S. SKINNER:

Sir:—I write to you to ask information upon a subject with which you are said to have more acquaintance than any other person in the country.

The French Government is desirous, on account of the comparative failure of the potato crop in France, to know the amount of the crop last year in the United States, the prospects of the ensuing year, and also in what localities and in what mode the best tubers are produced.

Not being able to subscribe to your paper, without previous permission from the French Government, which I have not yet obtained, will you be good enough to answer personally, and not, as is your usual custom, through its columns? I shall feel under great obligations to you by prompt attention to this.

I am, Sir, with respect,
Your most obedient servant,
M. DE VERNON,
The French Consul.

Sir:—The decennial returns of the products of American Agriculture not being yet completed, it is not in my power to answer your inquiries as to the last year's product of *potatoes*, while it is yet too soon, were it indeed practicable at any time in a country so extended as ours, to pronounce as to the prospect for the ensuing season, the crop not being yet planted.

The fruitlessness of all attempts hitherto by individuals, and even by commissions of able men, instituted by Governments in Europe, to throw any certain light on the potato rot, has prevented me from allowing it to engross, uselessly, much space in my Journal, deeming it more becoming at once to confess ignorance in a case of so much doubt and difficulty, and to wait for light. So far it may be said, that none of the various theories on this subject have been established to the general conviction. Some have referred it with confidence to *atmospheric influences*, others to the natural tendency of fruits and plants to *die out*, making it necessary to resort

occasionally to the seed for new varieties; but experience has contradicted all these assumptions. Thus in the last number of the *New-England Farmer*, the experienced editor says:—

"As to the cause of the potato rot, there have been many conjectures; and at first various secondary or predisposing causes, such as wet land, animal manures, warm wet weather, planting on old lands, &c., &c., were by different observers regarded as the principal cause, and those remedies which had a partial effect, and in some cases seemed sufficient, were at once regarded as completely effectual. Again, some varieties that were more hardy than usual, appeared from limited experience to be proof against the disease. But as it continued, and occasionally increased in violence, in some sections it swept away all theories.

"On every soil and location the potato has been affected; no manure, or mode of manur ng, or the absence of manure, has saved it from destruction when the disease has been severe. No variety has escaped the ravages of this disease. Even new varieties, which some thought might be relied on, have rotted as readily as old ones. We have raised new varieties from the seed that have rotted the first year, and last year we lost more than fifty varieties that were two and three years from seed, as they all rotted. Since this disease has prevailed, we have had some seasons that were rather dry and tolerably cool, without one severe rain during the period of the potato rot, and yet the rot has prevailed.

"It was supposed that the potato was declining generally, and that it might be renewed in full vigor by procuring seed and tubers from the native region of the potato. This has been tried without any favorable result. Potatoes from seed brought from Peru rotted as readily as old varieties planted by the side of them. When the disease was spreading nearly over the whole world, and the only places heard from where it did not decay were the South of Spain and some Islands of the Mediterranean, potatoes were procured from those favored spots, and planted in England, but they failed also.

"Although early planting is generally attended with the best success, yet no time of planting has been a security. We have known early potatoes to rot in June, and the disease to prevail occasionally from that time till the latter part of November. We have known it to appear early and then disappear for one or two months. One year, (1847,) we dug the most of our potatoes by the 20th of September, and they had rotted but very little, some varieties not any. We then omitted digging till the 10th of October, and in some cases they were half rotten by the side of those that had not rotted any at the previous digging.

"The state of the weather is not the principal cause of the rot, for in years past we had as wet and as warm weather as we have ever had since the rot prevailed; yet the wet, warm, muggy weather is the most powerful of all secondary or predisposing causes—so powerful, that when the weather is dry and cool, the potato will generally resist not only the principal, but all other secondary causes. As an example, in 1849, a season in which the disease was very light, generally, we had procured a hardy and valuable kind, and to subject it to a severe test, we planted some on wet land, and manured with unfermented animal manure. On digging them the last of September, they had not rotted. But as we had no rain of consequence for some weeks, we let a part of them remain, till after rather heavy rains in October, and yet they had not rotted. This variety seemed so hardy, that we planted more of them than any other variety last season, and the crop was not worth digging, not even on dry land."

The most certain preventive, that at least to which I should resort with most confidence, is one which has been brought to my notice in the course of editorial correspondence, and is probably not generally known. It was published by me in the *Journal of Agriculture*, in May, 1848, and experiments were made again the last season, fully confirmatory of the result then communicated.

The experiment consisted in planting the sets, from three to four inches deep, in drills about eighteen inches apart, and *covering the drills with well-cleaned straw*, about three or four inches thick, except a small portion of them that was left uncovered by way of trial. The potatoes in the portion of the field covered with straw were found, on being harvested, to be in full quantity, and entirely *exempt from disease*, while those *in the portion left uncovered were diseased.*

The trial has been made again the past season with the same result; and Mr. NAILL, a very judicious Agriculturist, and a Member of the Senate of Maryland, has determined to persevere in the same management, with confidence in its efficacy. The covering shades the plant, protects it from the effects of drought, and saves all expense of after culture.

Colonel M. P. WILDER, the President of the Norfolk County Agricultural Society of Massachusetts, and among the most enlightened horticulturists of the day, has recently expressed, as to cause and remedy, his full faith in the opinion of Mr. TESCHEMACHER, (distinguished for his botanical and chemical knowledge,) who is convinced by microscopic observations, and was the first to proclaim the opinion, that the cause of this disease is a *fungus* propagated by clouds of invisible spores (seeds) which settle in some places and not in others, just "as the wind listeth or bloweth," and that whenever they come, where they light or settle down *in contact with salt*, they cannot vegetate. This last suggestion accords with the experience of my friend R. L. COLT, of Roswell House, New-Jersey, who says he has found the disease to be much aggravated by the use of barn-yard manure, and that where he employed eight or ten bushels of Turk's Island salt, his potatoes were of fine quality, free from disease. It may be that the straw on which the spores of the fungus alighted proved to be a non-conductor, or bed unsuited to their propagation. Be that as it may, I can vouch for the intelligence, and for the observant and cautious habits of my correspondent, Mr. Naill, and the confidence which may be placed in his statement of any facts related as falling under his personal notice.

The trial is very easily made, and will well pay for the trouble in the economy of labor it proposes, to wit: dispensing with all after culture.

The phenomena connected with the physiology of this plant, and especially as to the cause of this malady, have undergone much more scientific investigations in Europe than in this country. But it may have happened in the case above, as sometimes does happen, that accident has revealed what science had failed to discover.

Very respectfully,
Your obedient servant,
JOHN S. SKINNER.

To M. DE VERNON, ESQ.,
French Consul at Philadelphia.

THE PRESIDENT'S MESSAGE:

NOTICE OF AND EXTRACT FROM, IN THE LONDON MARK LANE EXPRESS.

THE following extract from the American President's Message merits particular attention:—

"CONTEMPLATED TARIFF.

"All experience has demonstrated the wisdom and policy of raising a large portion of revenue for the support of government from duties on goods imported. The power to lay these duties is unquestionable; and its chief object of course is to replenish the treasury. But if, in doing this, an accidental advantage may be gained by encouraging the industry of our own citizens, it is our duty to avail ourselves of that advantage.

"A duty laid upon an article which cannot be produced in this country—such as tea or coffee—adds to the cost of the article; and is chiefly or wholly paid by the consumer. But a duty laid upon an article which may be produced here stimulates the skill and industry of our own country to produce the same article, which is brought into the market in competition with the foreign article; and the importer is thus compelled to reduce his price to that at which the domestic article can be sold, thereby throwing a part of the duty upon the producer of the foreign article."

"The continuance of this process creates the skill, and invites the capital, which finally enables us to produce the articles much cheaper than it could have been procured from abroad, thereby benefiting both the producer and the consumer at home. The consequence of this is, that the artisan and the agriculturist are brought together; each affords a ready market for the produce of the other; the whole country becomes prosperous, and the ability to produce every necessary of life renders us independent in war as well as in peace.

"A high tariff can never be permanent. It will cause dissatisfaction, and will be changed. It excludes competition, and thereby invites the investment of capital in manufactures to such excess that when changed it brings distress, bankruptcy, and ruin upon all who have been misled by its faithless protection. What the manu-

facturer wants is uniformity and permanency, that he may feel a confidence that he is not to be ruined by sudden changes.

"But to make a tariff uniform and permanent, it is not only necessary that the law should not be altered, but that the duty should not fluctuate. To effect this, all duties should be *specific, wherever the nature of the article is such as to admit of it.* Ad valorem duties fluctuate with the price, and offer strong temptations to fraud and perjury. Specific duties, on the contrary, are equal and uniform in all ports, and at all times, and offer a strong inducement to the importer to bring the best article, as he pays no more duty upon that than upon one of inferior quality.

"I therefore strongly recommend a modification of the present tariff, which has prostrated some of our most important and necessary manufactures, and that specific duties be imposed sufficient to raise the requisite revenue, making such discrimination in favor of the industrial pursuits of our own country as to encourage home production, without excluding foreign competition. It is also important that an unfortunate provision in the present tariff, which imposes a much higher duty upon the raw material that enters into our manufactures than upon the manufactured article, should be remedied.

"As before stated, specific duties would, in my opinion, afford the most perfect remedy for this evil: but if you should not concur in this view, then, as a partial remedy, I beg leave respectfully to recommend that, instead of taking the invoice of the article abroad as a means of determining its value here, the correctness of which invoice it is in many cases impossible to verify, the law be so changed as to require a home valuation or appraisal, to be regulated in such manner as to give, as far as practicable, uniformity in several ports."

HONOR TO THE PLOUGH.

For this we must, it seems, look to any other Government before the one which boasts of being a *popular* Government—a Model Republic.

We learn from the following communication, which appears in *L'Echo Agricole* a French agricultural journal that services valuable to agriculture, are in France regarded as deserving of honorable distinction equally with the professions, the sciences, or the arts.

By a decree issued by the President of the Republic, at the suggestion of the Minister of Agriculture and Commerce, dated the 10th of December, 1850, the following persons have had the order of the Legion of Honor conferred upon them:—

M. M. Dawzat, a Member of the General Council of the High Pyrenees during a period of sixteen years, in consideration of services rendered to agriculture.

Darblay, Jr., Member of the Council of the Department of Corbeil, for the remarkable impulse he has given to the grain trade, and to the manufacture of flour.

Gareau, as a reward for the remarkable progress he has caused to to be made in the art of drainage, and the zeal he has shown in extending the practice of it in France.

Graux, of Mauchamp farmer, for services rendered in sheep-breeding, by improving the fine-woolled Merinos sheep of Mauchamp.

Lemarié, of Toufreville, for his useful agricultural works, and the remarkable improvement which he has caused to be made in the breeding of cattle.

W. Lecocq, a landed proprietor of Clermond Ferrand.

Perrin, of Bénévent, President of the Association of Vaugneray, for having materially contributed to the advancement of agriculture in the Department of the Rhone.

"We cannot but applaud the act of justice," says *L'Echo Agricole*, "by which the Government has just admitted into the ranks of the Legion of Honor a certain number of eminent men who have rendered services to their country as agriculturists and as commercial men. There is not one of those whose names we have just given, who does not merit in the highest degree the reward awarded to them. We should not have particularized any one, if the appointment of M. Darblay, Jr., and the motives on which the *Moniteur* relies, did not appear to us sufficient to call for a

particular observation. Already a certain number of farmers have received the decoration of the Legion of Honor, but up to the present time we have not seen it conferred for services rendered as a corn-merchant and flour manufacturer. Decorations have been lavished upon almost every species of manufacture and commerce—cloth, calicoes, silks, &c.; but the trade and manufacture which affect in the highest degree the grower and consumer of agricultural produce, have been buried in oblivion. This omission, it must be admitted, was an injustice founded upon prejudice. The high reward given to M. Darblay is a beginning of reparation; it will be an encouragement to all those who, far or wide, follow M. Darblay in the career he has run, and which he still runs with so much honor and ability. It is at the same time an indication that the prejudice against the grain and flour trade is disappearing in the administrative department: it is by such acts that a salutary influence is produced on public opinion, and that fatal errors are dispersed. The reward, regarded in this point of view, is alike honorable to the citizen who has received it, and to the minister by whose recommendation it has been given (At Pommier)."

☞ The reader will observe that we have given several articles on culinary vegetables, such as it may be that some are not in the way of cultivating. But then it is to be remembered that this Journal is patronized, not only by Planters and Farmers, cultivating great staples on a large scale, but by many Market Gardeners, and by gentlemen in cities, who have their gardens in the neighborhood.

The pamphlet from which these articles are taken was imported expressly under the assurance of its being the recent experience of a man distinguished for his practical knowledge and success; and though it may contain much that is adapted only to what is called *high culture* in Horticulture, it contains also much that many might practise with profit, who pay too little attention to such things. There are several such articles yet in reserve, which, bearing in mind the season at hand, would have been given if we had received it in time.

☞ We have a collection of facts in answer to an inquiry about the cultivation of the sun-flower, with a view to the extraction of oil from its seed, but we are obliged to postpone many things that we would like to insert—and among them an article from a venerable and respected friend, in contradiction to the declaration from the Department of the Interior as to the generally perishable nature of *sand-stone* for public buildings. In the meantime, we doubt much if the sun-flower can be profitably cultivated with the views specified.

☞ Some very remarkable observations have been made by Doctor W. M. Fahnestock, on a case of wheat germinating when encased in ice, and which grew on being planted out. We shall register, in order to preserve the facts, as soon as we can. They appear to be at war with all theory and experience on the laws of vegetable germination, which has been supposed to demand, indispensably, not only air and a certain degree of moisture, but also of *heat*.

☞ The new insect enemy to the growing wheat, sent by a friend from Edenton, N. C., has been referred to a lady, proficient in the history of insects, whose answer we will publish in our next. She says it belongs to the order of *alphidæ* or plant lice. The same insect and its ravages have been observed in Kent county, Maryland.

☞ The denial of the necessity and value of protection to American labor is a hollow pretence; if not, why do all parties unite in what those who enacted it call the *protective* tariff of 1846? The fact is, the principle is yielded. It can no longer be denied. The question is one, therefore, not of principle, but of *amount*, and of guarantee for its enforcement against fraud and perjury. What excuse can there be for refusing to provide against these?

Editor's Table.

"THE WORK GOES BRAVELY ON."

———, *February* 16, 1851.

My Dear Sir:—I was much pleased with the suggestion of Governor Trimble, of Ohio, who volunteered to join one hundred or one thousand, to make up five each; and in default to take that number of the *Plough, the Loom, and the Anvil* himself. This project, if carried out, will be some compensation for the labors of the veteran Editor in the cause of Agriculture: one who has toiled for us just about one third of a century. The writer of this article recollects well of reading the first number of the old *American Farmer*, bearing date 2d April, 1819, and also the last number of the PLOUGH, THE LOOM, AND THE ANVIL, bearing date February, 1851, and can bear testimony that the Editor has never faltered in the good work of giving us the requisite information as to how to produce the best *crops, finest stock*, the most *thrifty towns*, and most *prosperous population*, at the least possible cost; and also how *to obtain the best market* for the products of all our labors: all of which he has demonstrated to be easily attained, by simply placing the *Loom and the Anvil near by the side of our Ploughs*. So easily, indeed, that I am only astonished that every farmer and business man in the whole country has not come out, as one man, to sustain him in his patriotic and zealous efforts by *all* sending in their names and amount of subscription to the *Plough, the Loom, and the Anvil*.

This being my view of the value of his untiring efforts, for more than thirty years, I propose to get a *few thousand*, instead of two hundred clubs, of five subscribers each, by myself standing sponsor (as Governor Trimble recommends) for a club of five each for *each of the counties* in the State of Delaware. I do hereby order that five packages each for every county of this State, of the present or third volume of the *Plough, the Loom, and the Anvil*, may be set apart for that purpose; and I will be up in the course of a month with the names and addresses of the new and additional batch of subscribers, together with the amount of subscription at two dollars each. I want the back numbers of the present volume, which contain those valuable papers, the *Harmony of Interests*, by H. C. Carey, of Burlington, N. J., and which ought to be read, if possible, by *every American citizen*. It is time the whole people should rally to American Interests, and abandon the bauble of Free Trade; to an extent, at least, of sending subscribers equal to at least five from each county in all the States and Territories in the Union.

Respectfully and truly yours, J. J.

To J. S. SKINNER, Esq., Ed. Plough, Loom, and Anvil.

P. S. If my project were carried out to the extent desired by me, throughout the Union, your profits in the matter would not net you a tithe of the amount that Richard Cobden or some other writer on Free Trade obtained in England, in ready cash—three hundred and fifty thousand dollars, was it not?

☞ About 40 of the two hundred taking 5 copies each for gratuitious distribution, or for *sub*-subscribers, have already sent in their names and contributions. The completion of that company will put the editor once more in a comfortable fix; and even 5 to a State would do it. He gives to the industrial classes all his time and faculties with good will, and only laments that he is not in a situation to do it gratuitiously.—*Ed. P., L., and A.*

WOOL AND MUTTON.

BLUE POND FARM, Wheatland, N. Y., Jan. 30, 1851.

Dear Sir:—I now inclose $5 for vol. III. and IV. May you be blessed to hold on your way for many a long year. You cannot extol the sheep too high. We must become a wool-growing and mutton-eating nation. I have a flock of Merinoes of three hundred, which have given me a return of over $3 per head in wool and increase the past year. The average fleece was 4 lbs. 13 oz. per head.

J. S. SKINNER, ESQ. Yours truly, RAWSON HARMON.

AGRICULTURAL ADVERTISER.

OPPORTUNITIES such as the one here offered so rarely occur, that all who desire a dip of best blood of the "Short-horns" to be had in any country, will do well to be in attendance personally, or by agent.—ED. P., L., AND A.

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At his Farm, two and a half miles from this City,

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It is known to breeders of improved stock in this country and in Canada, that the proprietor of this herd during the past twelve years has, through the medium of importations from England, and selections from the best herds in this country, spared no expense to rear a herd of cattle from which superior animals could be safely drawn for improvement and crosses upon other herds. His importations have been derived from that eminent breeder, the late Thomas Bates, Esq., of Kirklevington, Yorkshire, England; which herd, it is well known, has recently been disposed of at public sale by his administrators, and dispersed in many hands, and can no longer be resorted to as a whole for improvement.

The announcement of that sale created great interest, and all Short-horn breeders in England seemed emulous to secure one or more of these animals to mingle with the blood of their own herds; and at the day of sale, there was found assembled the largest audience ever before witnessed upon a similar occasion, numbering, as was said, four to five thousand persons, and among them the best breeders in England, and several from other countries, some of the animals bringing prices that seemed incredible to many.

In the herd now offered for sale will be included the imported Bull, Duke of Wellington, and the premium Bull, Meteor; these are Bates's Bulls, and their reputation as stock getters is too well known to need any comment. I am, however, authorized by Lewis F. Allen, Esq., of Black Rock, one of the most prominent breeders in this country, and who has had ample means of forming a judgment, to say, "that in no instance, to his knowledge, had these two Bulls been placed to short-horn cows of other herds previously imported into the United States, but what the produce was superior, in general qualities, to such herds."

The most of the stock which is now offered for sale have been bred from these two Bulls, and the proprietor having a young Bull, more remotely connected with that portion of the herd he retains, (being about fourteen in number,) can spare these two valuable Bulls. There will be in the stock offered for sale six young Bulls from about eight months to two years old in addition to the two named above, and the remainder of the stock will be composed of Cows, (most of them possessed of extraordinary milking qualities,) Heifers and Heifer Calves. It is believed that no herd of Short-horns has ever been offered for sale in this country exhibiting more of the valuable combinations of qualities which contribute to make up perfect animals.

A Catalogue containing the pedigrees of these animals will be ready for delivery at an early period, in which the terms of the sale will be particularly stated. A credit will be given from six to eighteen months.

Gentlemen are invited to call and examine the herd at their convenience.

GEORGE VAIL.

Troy, New-York, February, 15th, 1851.

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All letters, post paid, will be promptly attended to.

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Do. do. Alderney do.
Do. do. Ayreshi[illegible]
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Poultry of the various breeds.
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Agent for the Purchase and sale of Improved Stock.

Philadelphia, January, 1851.

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ELEMENTS OF AGRICULTURE. Price 25 cents. It can be sent by mail at a cost of five cents postage. This is a school book that ought to be in the hands of every teacher and every schoolboy in the land.

The Editor pledges himself for the great value and unparalleled cheapness of all these works—all of which should be in the library of every gentleman in the country.

Any of the above can be sent by mail.

☞ Will our patrons be good enough to let their friends know, that if they wish to subscribe to "The Plough, the Loom, and the Anvil," they can commence at *any time*, and that a five dollar note will pay for *two* for one year, or ten dollars will pay for five.

THE AMERICAN FLOWER GARDEN DIRECTORY. New Edition. Price $1.25 Just published by A. Hart, (late Carey & Hart,) 126 Chestnut street, Philadelphia.

The American Flower Garden Directory, containing practical directions for the culture of plants in the flower garden, hot-house, green-house, rooms, or parlor windows, for every month in the year. With instructions for erecting a hot-house, green-house, and laying out a flower garden, adapted to either large or small gardens. Instructions also on the planting and culture of the Grape Vine. By Robert Buist, Nurseryman and Seed Grower. Fourth edition, improved.

"On culture, a work adapted to the climate must be the guide in this country. On this account, a work like the present has been a desideratum to aid the very rapid advancement of the culture of flowers among the intelligent of our flourishing Republic."—*Extract from the Preface.*

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WHEAT, RYE, BARLEY, INDIAN CORN, RICE, OATS, BEANS, PEAS, RUTA-BAGAS AND TURNIPS.

This machine can be regulated to drop any quantity per acre, at whatever depth required, and operates equally well on all kinds of land. It is so constructed as not to be injured by coming in contact with rocks, roots, &c. For simplicity, durability, and economy, it is unsurpassed by any other agricultural implement in use.

Price $100. A liberal discount allowed to Agents.

READ THE FOLLOWING.

Previous to harvest, we had five acres carefully measured with the chain and compass by W. Pennington, the surveyor of the neighborhood, assisted by John Jones, who saw it all cut, threshed and measured separately, with the following results:

Nos. 1 and 2.—Two acres of broadcast surveyed together—two bushels of seed to the acre—seventy-five shocks—fifty-five bushels of wheat, or twenty-seven and a half bushels to the acre.

No. 3.—One acre drilled, adjoining the above, the land, if any different, rather inferior; treated exactly alike—one bushel and one peck of seed to the acre—forty-two shocks, thirty-five bushels.

No. 4.—One acre drilled a little distance from No. 3, one bushel and one peck of seed, forty-two shocks, thirty-five bushels to the acre.

No. 5.—One acre drilled a little distance from No. 4, one bushel and one peck of seed, fifty shocks, forty bushels to the acre.

Here we see that by the use of the drill alone, (the soil being in the same, or perhaps an inferior condition,) the crop was increased seven and a half bushels per acre, and adding the amount saved, (three pecks,) make eight bushels and one peck to the acre; and further, that the amount of straw to the drilled acre, with a smaller quantity of seed sown, increased twelve per cent., and the amount of grain on the same acre was increased more than twenty-seven per cent. * * * The drill used was invented by M. PENNOCK & SONS, of Kennet Square, Chester County, Pennsylvania.

Respectfully, CHARLES NOBLE.

Philadelphia, 10th Mo., 1844.

Unionville, Chester Co., Pa., Feb. 8th, 1848.

I do hereby certify that I have used one of Pennock's Patent Drills for five years, and have put in from fifty to seventy acres of wheat for myself every year since, and have never failed having a good crop. I think I can safely say that I have realized from 30 to 50 per cent., or that it has averaged me from $300 to $400, and even $500 a year over the usual broadcast seeding. My land being low, I have lost greatly by the winter throwing the roots entirely out, which is wholly obviated by drilling. I would not take $500 for my Drill if I could not get another of the kind. JOHN HUEY.

Reedville, Mifflin Co., Pa., July 21st, 1848.

I hereby certify that, previous to harvesting, I measured one acre of wheat carefully, as follows: half an acre which had been drilled in with one of your machines, one and a quarter bushels of seed per acre—also half an acre broadcast, from one and three quarters to two bushels of seed per acre; and when cut and threshed, measured as follows: the half acre drilled wheat, thirteen shocks, measured twelve bushels and two quarts; the half acre broadcast, eight shocks, measured seven bushels eighteen quarts. The quality of the land exactly alike, and treated alike previous to sowing the seed.

ABNER THOMPSON.

We, the undersigned, were present, saw the land measured, cut the grain, and assisted in threshing the same, and believe the above statement to be correct.

JAS. REED. ALEXANDER REED,
H. G. MORRISON, WILLIAM STEELY,
D. C. MILLER, GEORGE ASHBY.

Shirly, Va., Nov. 5th, 1849.

Messrs. S. & M. Pennock: * * * * I have used your Patent Seed Drill, and do consider it the most simple and perfect, as well as the most complete labor-saving machine I ever saw. It does the work in our lower James River county, of 14 harrows, 12 horses, and 5 good men—(one of them a good seedsman)—with only 3 harrows and 2 smart boys. I am determined to have two of your Drills by next season if possible. * * * *

Most respectfully, yours, &c., HILL CARTER.

The subscribers manufacture, and keep constantly on hand, the above machine, together with a general assortment of agricultural implements, such as Ploughs, Horse Powers, and Threshers, Hussey's Reapers, Horse Rakes, Corn Shellers, Fanning Mills, &c. Also, Pennock's Improved Lever Jack, for raising carriages and wagons; together with steam engines and mill work of every description.

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OF

PLANK ROADS

IN THE UNITED STATES AND CANADAS.

BY W. KINGSFORD,

CIVIL ENGINEER OF HUDSON RIVER RAILROAD,

WITH

REMARKS ON ROADS IN GENERAL, AND A LETTER ON PLANK ROADS,

BY C. E. CLARKE.

EXTRACT FROM THE PREFACE.

"WITHIN the last three years, the plank road system has become a part of the economy of the State of New-York. Special enactments have been made to meet the circumstance, and hence, in the western part of the State, private enterprise has been abundantly enlisted in this species of improvement. So satisfactory have been the results, that the neighboring and more remote Southern States have commenced to inquire what are the benefits which plank roads extend; and it would seem that this improved mode of communication is likely to become generally introduced.

"Very little has hitherto been said upon the subject, and the writer has thought that it would not be unacceptable to many, to enter upon an inquiry as to the mode of construction, and the probable cost of plank roads, and their advantages and disadvantages, considered in connection with the old roadway—bringing forward statements of the results which are admitted to have proceeded immediately from the introduction of plank roads. It must, however, be allowed, that hitherto, with the advantages which are direct, and recognized by all, some demerits have been found. These, the writer believes, he will be able to establish to have grown up from vicious principles of construction, and can be guarded against, and, in the greater part, averted by prudence and care."

"It is a scientific and thorough treatise on this new kind of highway."—*Evening Bulletin.*

"Those who desire information upon the subject so fully treated of in this pamphlet, could not do better than purchase and read it."—*Saturday Evening Post.*

"We are now satisfied that plank roads may be made extensively and highly instrumental in the advancement of the value of lands, the growth of towns, and to the progress of the arts, which is but another word for the progress of civilization itself; and hence it is that we rejoice in the opportunity of here presenting the most thorough sketch of the history and principles of roads of that sort, that, as far as we are aware of, has yet appeared in this country."—*J. S. Skinner.*

"Mr. A. Hart, the well-known bookseller of this city, has just published a comprehensive little volume on the subject of plank roads, under the title of the 'History, Structure, and Statistics of Plank Roads in the United States and Canada, by W. Kingsford.' The treatise has the merit of being both short and compendious. All that is really worth knowing in reference to plank roads is here set forth; and no one can peruse the book without being convinced of the extreme usefulness of these roads. We advise all our farming friends, who wish to improve the roads in their vicinity, to send for this little volume, which can be obtained for the sum of fifty cents; and, meantime, to fulfil our purpose as a vehicle for useful information, we shall give a few facts, respecting plank roads, derived from the book."—*Saturday Gazette.*

"Numerous instances are cited, in the book before us, of the dividends made on plank roads, and of the rise in the value of lands contiguous to them. The facilities of travel afforded by plank roads are also dwelt upon. It is very certain that, in the great State of New York, where they have been most tried, these roads are becoming more popular daily. Mr. Kingsford, in a separate chapter, explains summarily what plank roads do for the farmer. We find it so comprehensive that we quote it:—

"'The farmer has, what he never had before, a good road every day in the year—the same in all seasons. Formerly the spring and fall were periods when the avenues to the neighboring city were closed to him. On the plank road, he can select for his journey days when he cannot work on the farm, taking with greater ease, in half the time, three times what he formerly could carry; and while residing close to the road, he sees his neighbor living five miles off, bringing two wagons to the planks, and then transferring the contents into the larger, and moving off with it—he can load his single vehicle with the full amount it can carry, and proceed onward without delay. His woodlands acquire, intrinsically, a value which they had not before, for he can cart sufficiently in one load to pay him for the expenses of carting and cutting, allowing a fair value for his timber. His farm increases in value from 10 to 50 per cent., and commands a sale from the fact that the produce never lacks a market, and has a more regular and higher *net* value. By the current price, he knows what he can count upon. His grain is worth what all grain fetches in the next market, deducting the cost of cartage to take it there, which he can calculate to a cent., and deliver when he needs money. The adjoining tannery (and the probability is that there is one within twenty miles) will buy his bark. His cord-wood can be carried the same distance. He sells, for remunerating prices, his perishable produce, such as vegetables and fruit, pumpkins, cornstalk, and fall apples, which brought him previously a very small sum, as the only market was in the small villages where there was little demand for them.

"'The wear and tear to his horse, harness, and vehicle is reduced at least one half. The tolls not only pay themselves in this saving, but even leave a surplus in the pocket of the farmer which would otherwise have been spent on repairs. Horse-shoes last twice the time. Instead of frequent new shoes, it is only necessary to have the old ones periodically removed. The very labor of cleaning the horse comes into calculation; one farmer assuring the writer that in very bad weather, setting aside all question of increase of load, and saving of time, he would sooner pay the tolls than have to rub down his horses in the state they used to be after travel on the old road.'"—*Gazette.*